COMMERCIAL INSPECTION AND TESTING SERVICES

File SV17005

Project 4786378318

May 08, 2014

JER YEU INDUSTRIAL CO LTD
TAICHUNG, 42749, TAIWAN

優力國際安全認證有限公司
台北市112北投區大業路260號1樓
電話：+886.2.2896.7790 / 傳真：+886.2.2891.7644 / 網址：ul.com.tw

May 08, 2014

Ms. Sky Chiang
Jer Yeu Industrial Co Ltd
348-3 Sec 3 Jungshan RD
Tantz
Taichung, 42749 Taiwan

Reference: File SV17005 Project 4786378318
Subject: CITS Closing Letter

Dear Mr. Chiang,

Per your request, project 4786378318 was opened, in accordance with your requested test protocol for the evaluation of product's flammability. Your requested test protocol for this project was to determine Flammability Vertical and Horizontal.

UL Verification Services did not select the sample(s), determine whether the sample(s) was representative of production samples, witness the production of the test sample(s), nor were we provided with information relative to the formulation or identification of component materials used in the test sample(s). The test results apply only to the actual sample(s) tested.

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This letter will serve to report that all tests on the subject product have been completed. This concludes all work associated with Project 4786378318 and we are therefore closing this project.

Test Result Summary:

Set No.	Test Item	Test Results
1	Model J 1-2 PU L FLEX HOSE, Flammability Horizontal	See Following Appendix Page
2	Model J 1-3 PU M FLEX HOSE, Flammability Horizontal	See Following Appendix Page
3	Model J 1-6 PU H FLEX HOSE, Flammability Vertical	See Following Appendix Page
Notes: Please see the following Appendix Page for Test Sample Information, Test Standard/Method, Test Result and Datasheet.		

Thank you for the opportunity to provide your company with these services. Please do not hesitate to contact us if you should have any questions or comments.

Very truly yours,

Alice Hsu
Project Engineer
Conformity Assessment Services
Underwriters Laboratories Taiwan Co., Ltd.
E-mail: Alice.Hsu@ul.com

Reviewed by

Kevin Den
Staff Engineer
Conformity Assessment Services
Underwriters Laboratories Taiwan Co., Ltd.

Appendix-1: Horizontal Burning Test

Standard(s) Referenced for this Evaluation:

- UL 94 STANDARD FOR SAFETY - TESTS FOR FLAMMABILITY OF PLASTIC MATERIALS FOR PARTS IN DEVICES AND APPLIANCES - Edition 6 - Issued Date 2013/03/28

Test Information for this Evaluation:

- For test criteria, conditioning and procedure, please refer to **UL 94, Section 7 for HORIZONTAL BURNING TEST; HB.**

Materials Classifications:

A material classed HB shall:	
(a)	Not have a burning rate exceeding 40 mm per minute over a 75 mm span for specimens having a thickness of 3.0 to 13 mm, or
(b)	Not have a burning rate exceeding 75 mm per minute over a 75 mm span for specimens having a thickness less than 3.0 mm, or
(c)	Cease to burn before the 100 mm reference mark.

Test Results:

Please see following page for test results.

Appendix-1: Horizontal Burning Test

HORIZONTAL BURNING TEST; HB			UL 94, §7 (ASTM D635, IEC 60695-11-10)
Specimen Review:	[ ]	Radius < 1.3 mm, Width = 13.0±0.5 mm, Length = 125±5 mm and edges are smooth.	

Specimen didn't meet the standard size. AH, 2014-05-08.

Preparation of Test Flame:		
Gas Flow Rate:	105	mL/min (105±5 mL/min)
Back Pressure:	1	mm water (<10 mm water)
[X] Test flame is blue (yellow tip just removed), Height = 20±1 mm		

Specimen No.	Thickness mm	Time, t (s)	Damaged Length, L (mm)	X_1	Burning Rate (mm/min)	Flame Class
Set #: 1 Material: J 1-2 PU L FLEX HOSE (0.4 mm) Color: TP						HB
Test Date: 2014-05-05						[ ] Yes
1	0.428	40	75	(3)	113	
2	0.417	41	75	(3)	110	[X] No
3	0.408	86	75	(3)	52	
Set #: 2 Material: J 1-3 PU M FLEX HOSE (0.6 mm) Color: TP						HB
Test Date: 2014-05-05						[X] Yes
1	0.687	65	75	(3)	69	
2	0.660	120	75	(3)	38	[ ] No
3	0.663	56	41	(1)	-	

Note:	Damaged Length (L) equals distance beyond 25 mm reference mark				
	Linear Burning Rate = 60L/t (Not calculated if 25 mm mark not passed)				
Observation (X_1):					
(1)	Ceased to burn before the 100 mm reference mark. Specimen is HB				
(2)	Ceased to burn before the 25 mm reference mark. Specimen is HB				
(3)	Misc:	Flame front passed both the 25mm and 100mm , L=75mm.			
Lab Ambient:	22	°C (25±10°C) and	50	%RH (< 75% RH)	

Appendix-2: 50W (20 mm) Vertical Flammability

Standard(s) Referenced for this Evaluation:

- UL 94 STANDARD FOR SAFETY - TESTS FOR FLAMMABILITY OF PLASTIC MATERIALS FOR PARTS IN DEVICES AND APPLIANCES - Edition 6 - Issued Date 2013/03/28

Test Information for this Evaluation:

- For test criteria, conditioning and procedure, please refer to **UL 94, Section 8 for 50W (20 mm) Vertical Burning Test**.

Materials Classifications:

Criteria Conditions	V-0	V-1	V-2
Afterflame time for each individual specimen t_1 or t_2	≤ 10 sec	≤ 30 sec	≤ 30 sec
Total afterflame time for any condition set (t_1 plus t_2 for the 5 specimens)	≤ 50 sec	≤ 250 sec	≤ 250 sec
Afterflame plus afterglow time for each individual specimen after the second flame application (t_2 + t_3)	≤ 30 sec	≤ 60 sec	≤ 60 sec
Afterflame or afterglow of any specimen up to the holding clamp	No	No	No
Cotton indicator ignited by flaming particles or drops	No	No	Yes

Test Results:

Please see following page for test results.

Appendix-2: 50W (20 mm) Vertical Flammability

50W (20 mm) VERTICAL BURNING TEST; V-0, V-1 or V-2	UL 94, §8 (ASTM D3801, IEC 60695-11-10)

Specimen Review:	[ ]	Radius < 1.3 mm, Width = 13±0.5 mm, Length = 125±5 mm and edges are smooth.

Specimen didn't meet the standard size. AH, 2014-05-08.

Preparation of Test Flame:		
Gas Flow Rate:	105	mL/min (105±5 mL/min)
Back Pressure:	3	mm water (<10 mm water)
[X] Test flame is blue (yellow tip just removed), Height = 20±1 mm		

Set#: 3 Material: J 1-6 PU H FLEX HOSE (0.9 mm) Color: TP													
>48h/23±2°C/50±5%RH							168±2h/70±2°C + >4h/23±2°C/<20%RH						
Test Date: 2014-05-07							Test Date: 2014-05-07						
Start Time:20:40				End Time: 20:50			Start Time: 20:51				End Time: 21:00		
#	Thk (mm)	t_1 (s)	X_1	t_2 (s)	t_2+ t_3 (s)	X_2	#	Thk (mm)	t_1 (s)	X_1	t_2 (s)	t_2+ t_3 (s)	X_2
1	0.901	3	4	2	2	6	6	0.916	7	4	16	16	6
2	0.923	2	4	26	26	6	7	0.899	2	4	19	19	6
3	0.902	11	4	28	28	6	8	0.921	4	4	7	7	6
4	0.925	6	4	14	14	6	9	0.912	2	4	3	3	6
5	0.901	9	4	29	29	6	10	0.913	2	4	14	14	6
Total Flame Time, $\Sigma t_1+\Sigma t_2$ (s):				130			Total Flame Time, $\Sigma t_1+\Sigma t_2$ (s):				76		
Notes:	Cotton used within 30 min, please refer to start time and end time.						Flame Class:				V-2		

Observations (X_1, X_2)

(1) Specimen burned up to holding clamp.
(2) Specimen did not drip.
(3) Specimen dripped particles which did not ignite cotton.
(4) Specimen dripped particles which ignited cotton.
(5) Fumes from specimen extinguished flame-burner relit during test.
(6) Misc: Specimen dripped particle and ignited cottton at first flame applied already.

Lab Ambient:	22	°C (25±10°C) and	58	%RH (< 75%RH)

For engineering use only:

[ ] VTM was attempted for samples < 0.025mm, but wrapping of the sample around the mandrel was NOT possible.

優力國際安全認證有限公司
台北市112北投區大業路260號1樓
電話: +886.2.2896.7790 / 傳真: +886.2.2891.7644 / 網址: ul.com.tw