燁輝企業股份有限公司
YIEH PHUI ENTERPRISE CO., LTD.
Testing and Measurement Laboratory
No. 369, Yuliao Road, Qiaotou District,
Kaohsiung City 82544, Taiwan
TEL: 886-7-6117181 ext: 7851
FAX:886-7-6117181 ext:2570

Experiment Report

ilac-MRA TAF Testing Laboratory 0476

Client :	M Metal Pte Ltd, 5 Kian Teck Drive, Singapore 628822	**Application No. :**	18050803
Applicant(Address) :	Alex Lo (No. 369, Yuliao Road, Qiaotou District, Kaohsiung City 82544, Taiwan (R.O.C.))	**Report No. :**	L180905
Product Type :	Pre-painted Sheet	**No. of Sample Tested :**	3
Sample Received :	Mar. 08, 2018 Test Date : Sep. 18, 2018	**Report Date :**	Sep. 18, 2018
Test Purpose :	Sample quality test.		
Sample Description :	Specimen from Yieh Phui's production line. : 1. iClean HDP coil number : 6CA173B00 、number : C85002(G550 AZ200 55% Al-Zn steel) 2. SMP coil number : 84C191B00 、number : C85003(G550 AZ200 55% Al-Zn steel) 3. PVDF coil number : 7BC289B00 、number : C85004(G550 AZ200 55% Al-Zn steel)		

Test Item & Result : (Temp. : 24℃ 、R.H. : 55%)
1.iClean HDP coil number : 6CA173B00 、number : C85002(G550 AZ200 55% Al-Zn steel)

Accredited item by TAF	Test item	Test Standard (Method)	Correspond to Singapore Standard SS631: 2017	Specifications		Result
				Normal	Severe	
✓	Dry Film Thickness	ASTM D 7091-13	SS 5 -B1	Average of triple-spot test ≧ 23 μm.		**Q.C. Pass** Average of triple-spot test : 24.5 to 25.5 μm.
✓	Reverse Impact Resistance	JIS K5600-5-3 Dupont method (2013)	ISO 6272	No cracking of paint film.		**Q.C. Pass** No cracking of paint film.
✓	T-bend test	ASTM D 4145-10	AS/NZS 2728	No paint film removal at 5T or 6T		**Q.C. Pass** No paint film removal at 1T.
✓	Pencil Hardness	ASTM D 3363-05 (2011)	ASTM D 3363	HB minimum		**Q.C. Pass** H no scratch.
✓	Cross Cut Adhesion (1 mm spacing)	JIS K5600-5-6 :1999	ISO 2409	Classification 0.		**Q.C. Pass** Classification 0.
✓	Specular Gloss	ASTM D 523-14	SS 5 - E1	35±5 units		**Q.C. Pass** 30.2 to 31.2 units
✓	Colour	ASTM D 2244-16	SS 5- E3	ΔE≦1.5 (Slight colour difference)		**Q.C. Pass** ΔE : 0.28 to 0.35 (Slight colour difference.)
	Acid Resistance (10% v/v Hcl)	JIS K5600-6-1 :2016	ISO 2812	【Spot test in 72 hours】 No blistering or visual change.		**Q.C. Pass** No blistering or visual change.

NOTE : "✓" marks the items approved by TAF.

Note : 1. THIS REPORT REFERS ONLY TO THE SPECIMENS PROVIDED.
2. THIS REPORT WILL BECOME EFFECTIVE ONLY WHEN STAMPED WITH OFFICIAL SEALS AND SIGNED WITH AUTHORIED SIGNATURES.
3. THIS REPORT INCLUDES " 6 " PAGES ONLY.

Approved by Ying-Lin Yang **Confirmed by** _____ **Test Engineer** CHUN HSIEN LI

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Report number:L180905

1.iClean HDP coil number : 6CA173B00、number : C85002(G550 AZ200 55% Al-Zn steel)

Accredited item by TAF	Test item	Test Standard (Method)	Correspond to Singapore Standard SS631: 2017	Specifications		Result
				Normal	Severe	
✓	Accelerated weathering	ASTM G 154-16	SS 5-G9	3000 hours test	3000 hours test	**Q.C. Pass** No cracking, blistering, corrosion of base metal and color change(ΔE)≦2.
				No cracking, blistering, corrosion of base metal and color change (ΔE)≦2.5		
✓	Humidity Resistance	JIS K5600-7-2 :1999	SS 5-G6	1000 hours test	1000 hours test	**Q.C. Pass** ◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line.
				◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line.		
✓	Salt Spray Resistance	ASTM B 117-16	SS 5 -G10	1000 hours test	2000 hours test	**Q.C. Pass** **1. Seal edges.** (a)Surface with scribe line. ◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line. (b)Surface without scribe line. ◎No blistering of organic coating or corrosion of base metal. **2. 3 out of 4 sides unsealed.** Surface without scribe and assessed at a distance of 25 mm beyond the edges. ◎Density of Blistering—Few. (Similar to Rating 2 in SS 5 Part G1) ◎Size of Blisters—Size No. 6 (Similar to Class 3 in SS 5 Part G1) ◎No corrosion of base metal.
				1. Sealed edges. (a)Surface with scribe line ◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line. (b)Surface without scribe line. ◎ No blistering of organic coating or corrosion of base metal. **2. 3 out of 4 sides unsealed.** Surface without scribe and assessed at a distance of 25 mm beyond the edges. ◎Density of Blistering—Rating 2. ◎Size of Blisters—Class 3. ◎No corrosion of base metal.		

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Experiment Report

Report number:L180905

2. SMP coil number : 84C191B00 、number : C85003(G550 AZ200 55% Al-Zn steel)

Accredited item by TAF	Test item	Test Standard (Method)	Correspond to Singapore Standard SS631: 2017	Specifications		Result
				Normal	Severe	
✓	Dry Film Thickness	ASTM D 7091-13	SS 5 -B1	Average of triple-spot test ≧ 23 μm.		**Q.C. Pass** Average of triple-spot test : 24.2 to 24.7 μm.
✓	Reverse Impact Resistance	JIS K5600-5-3 Dupont method (2013)	ISO 6272	No cracking of paint film.		**Q.C. Pass** No cracking of paint film.
✓	T-bend test	ASTM D 4145-10	AS/NZS 2728	No paint film removal at 5T or 6T		**Q.C. Pass** No paint film removal at 1T.
✓	Pencil Hardness	ASTM D 3363-05 (2011)	ASTM D 3363	HB minimum		**Q.C. Pass** H no scratch.
✓	Cross Cut Adhesion (1 mm spacing)	JIS K5600-5-6 :1999	ISO 2409	Classification 0.		**Q.C. Pass** Classification 0.
✓	Specular Gloss	ASTM D 523-14	SS 5 - E1	25±5 units		**Q.C. Pass** 21.8 to 22.4 units
✓	Colour	ASTM D 2244-16	SS 5- E3	ΔE≦1.5 (Slight colour difference)		**Q.C. Pass** ΔE : 0.28 to 0.36 (Slight colour difference.)
	Acid Resistance (10% v/v Hcl)	JIS K5600-6-1 :2016	ISO 2812	【Spot test in 72 hours】 No blistering or visual change.		**Q.C. Pass** No blistering or visual change.

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Experiment Report

Report number:L180905

2. SMP coil number : 84C191B00 、number : C85003(G550 AZ200 55% Al-Zn steel)

Accredited item by TAF	Test item	Test Standard (Method)	Correspond to Singapore Standard SS631: 2017	Specifications		Result
				Normal	Severe	
✓	Accelerated weathering	ASTM G 154-16	SS 5-G9	3000 hours test	3000 hours test	**Q.C. Pass** No cracking, blistering, corrosion of base metal and color change(ΔE)≦2.
				No cracking, blistering, corrosion of base metal and color change (ΔE)≦2.5		
✓	Humidity Resistance	JIS K5600-7-2 :1999	SS 5-G6	1000 hours test	1000 hours test	**Q.C. Pass** ◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line.
				◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line.		
✓	Salt Spray Resistance	ASTM B 117-16	SS 5 -G10	1000 hours test	2000 hours test	**Q.C. Pass** **1. Seal edges.** (a)Surface with scribe line. ◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line. (b)Surface without scribe line. ◎No blistering of organic coating or corrosion of base metal. **2. 3 out of 4 sides unsealed.** Surface without scribe and assessed at a distance of 25 mm beyond the edges. ◎Density of Blistering—Few. (Similar to Rating 2 in SS 5 Part G1) ◎Size of Blisters—Size No. 6 (Similar to Class 3 in SS 5 Part G1) ◎No corrosion of base metal.
				1. Sealed edges. (a)Surface with scribe line ◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line. (b)Surface without scribe line. ◎ No blistering of organic coating or corrosion of base metal. **2. 3 out of 4 sides unsealed.** Surface without scribe and assessed at a distance of 25 mm beyond the edges. ◎Density of Blistering—Rating 2. ◎Size of Blisters—Class 3. ◎No corrosion of base metal.		

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Report number:L180905

3. PVDF coil number : 7BC289B00 、number : C85004(G550 AZ200 55% Al-Zn steel)

Accredited item by TAF	Test item	Test Standard (Method)	Correspond to Singapore Standard SS631: 2017	Specifications		Result
				Normal	Severe	
✓	Dry Film Thickness	ASTM D 7091-13	SS 5 -B1	Average of triple-spot test ≧ 23 μm.		**Q.C. Pass** Average of triple-spot test：24.8 to 25.4 μm.
✓	Reverse Impact Resistance	JIS K5600-5-3 Dupont method (2013)	ISO 6272	No cracking of paint film.		**Q.C. Pass** No cracking of paint film.
✓	T-bend test	ASTM D 4145-10	AS/NZS 2728	No paint film removal at 5T or 6T		**Q.C. Pass** No paint film removal at 1T.
✓	Pencil Hardness	ASTM D 3363-05 (2011)	ASTM D 3363	HB minimum		**Q.C. Pass** F no scratch.
✓	Cross Cut Adhesion (1 mm spacing)	JIS K5600-5-6 :1999	ISO 2409	Classification 0.		**Q.C. Pass** Classification 0.
✓	Specular Gloss	ASTM D 523-14	SS 5 - E1	25±5 units		**Q.C. Pass** 25.2 to 27.2 units
✓	Colour	ASTM D 2244-16	SS 5- E3	ΔE≦1.5 (Slight colour difference)		**Q.C. Pass** ΔE：0.26 to 0.31 (Slight colour difference.)
	Acid Resistance (10% v/v Hcl)	JIS K5600-6-1 :2016	ISO 2812	【Spot test in 72 hours】 No blistering or visual change.		**Q.C. Pass** No blistering or visual change.

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3. PVDF coil number : 7BC289B00、number : C85004(G550 AZ200 55% Al-Zn steel)

Accredited item by TAF	Test item	Test Standard (Method)	Correspond to Singapore Standard SS631: 2017	Specifications		Result
				Normal	Severe	
✓	Accelerated weathering	ASTM G 154-16	SS 5-G9	3000 hours test	3000 hours test	**Q.C. Pass** No cracking, blistering, corrosion of base metal and color change(ΔE)≦2.
				No cracking, blistering, corrosion of base metal and color change (ΔE)≦2.5		
✓	Humidity Resistance	JIS K5600-7-2 :1999	SS 5-G6	1000 hours test	1000 hours test	**Q.C. Pass** ◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line.
				◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line.		
✓	Salt Spray Resistance	ASTM B 117-16	SS 5 -G10	1000 hours test	2000 hours test	**Q.C. Pass** **1. Seal edges.** (a)Surface with scribe line. ◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line. (b)Surface without scribe line. ◎No blistering of organic coating or corrosion of base metal. **2. 3 out of 4 sides unsealed.** Surface without scribe and assessed at a distance of 25 mm beyond the edges. ◎Density of Blistering—Few. (Similar to Rating 2 in SS 5 Part G1) ◎Size of Blisters—Size No. 6 (Similar to Class 3 in SS 5 Part G1) ◎No corrosion of base metal.
				1. Sealed edges. (a)Surface with scribe line ◎No blistering of organic coating or corrosion of base metal. ◎No loss of adhesion beyond 2mm from scribe line. (b)Surface without scribe line. ◎ No blistering of organic coating or corrosion of base metal. **2. 3 out of 4 sides unsealed.** Surface without scribe and assessed at a distance of 25 mm beyond the edges. ◎Density of Blistering—Rating 2. ◎Size of Blisters—Class 3. ◎No corrosion of base metal.		

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