

Test Report

號碼(No.): EKR20A02133 日期(Date): 05-Nov-2020 頁數(Page): 1 of 15

台灣美泰樂表面處理股份有限公司 (METALOR COATINGS (TAIWAN) CORPORATION) 高雄市楠梓加工出口區東七街16-3號 (16-3, EAST 7TH ST., NAN-TZE EXPORT PROCESSING ZONE KAOHSIUNG, TAIWAN R.O.C.)

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as):

送樣廠商(Sample Submitted By) : 台灣美泰樂表面處理股份有限公司 (METALOR COATINGS (TAIWAN)

CORPORATION)

樣品名稱(Sample Name) : 鍍銀系列 (SILVER PLATING SERIES)

樣品型號(Style/Item No.) : K-900 Basic Solution(2T), K-930 Acid(2T)(3T), K-930 Brightener (E), K-930

Conducting Salts, K-930 Replenisher (2T), AG-30 (3T), FS-2, Leveller No.3, Leveller No.4, Super Dip A 10T, Super Dip A Adjusting Salts, Super Dip F, S-940 EX Brightener, PET-500 Antitarnish, PET-880 Antitarnish, Potassium Silver

Cyanide, S-900 Basic Solution, S-900 Silver Salts.

收件日(Sample Receiving Date)

测学期間(Tasting Daried)

30-Oct-2020

測試期間(Testing Period)

: 30-Oct-2020 to 05-Nov-2020

測試需求(Test Requested) :

(1) 依據客戶指定、參考RoHS 2011/65/EU Annex II及其修訂指令(EU) 2015/863測 試鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP。 (As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).)

(2) 其他測試項目請見下一頁。 (Please refer to next pages for the other item(s).)

測試結果(Test Results)

請參閱下一頁 (Please refer to following pages.)

結 論(Conclusion)

(1) 根據客戶所提供的樣品·其鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP的測試結果符合RoHS 2011/65/EU Annex II暨其修訂指令(EU) 2015/863之限值要求。 (Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU)

2015/863 amending Annex II to Directive 2011/65/EU.)

報告簽署人/張伯睿 博士/技術》理 Ray Chang, Ph.D. Manager-T Signed for and on behalf of SGS TAIWAN LTD.

化學實驗室-高雄/Chemical Laboratory-Kaohsiung

CHECK REPORT SPA

PIN CODE: D804245A



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測試部位敘述 (Test Part Description)

No.1 : 透明液體 (TRANSPARENT LIQUID)

測試結果 (Test Results)

測試項目	測試方法	單位	MDL	結果	限值
(Test Items)	(Method)	(Unit)		(Result)	(Limit)
				No.1	
鎘 (Cd) (Cadmium (Cd)) (CAS No.: 7440-	參考IEC 62321-5: 2013,以感應耦合電漿	mg/kg	2	n.d.	100
43-9)	發射光譜儀分析。(With reference to IEC				
鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1)	62321-5: 2013, analysis was performed	mg/kg	2	n.d.	1000
	by ICP-OES.)				
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-	參考IEC 62321-4: 2013+ AMD1: 2017,	mg/kg	2	n.d.	1000
97-6)	以感應耦合電漿發射光譜儀分析。(With				
	reference to IEC 62321-4: 2013+ AMD1:				
	2017, analysis was performed by ICP-				
	OES.)				
六價鉻 (Hexavalent Chromium) Cr(VI)	參考IEC 62321-7-2: 2017,以紫外光-可見	mg/kg	8	n.d.	-
(CAS No.: 18540-29-9)	光分光光度計分析。(With reference to				
	IEC 62321-7-2: 2017, analysis was				
	performed by UV-VIS.)	- 1			
一溴聯苯 (Monobromobiphenyl)		mg/kg	5	n.d.	-
二溴聯苯 (Dibromobiphenyl)		mg/kg	5	n.d.	-
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.	-
四溴聯苯 (Tetrabromobipenyl)	 参考IEC 62321-6: 2015・以氣相層析儀/質	mg/kg	5	n.d.	=
五溴聯苯 (Pentabromobiphenyl)	iii 儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.	-
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.	-
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.	-
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.	-
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.	-
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.	1000



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(Test Items)	(Method)	(Unit)		(Result)	(Limit)
				No.1	
一溴聯苯醚 (Monobromodiphenyl ether)		mg/kg	5	n.d.	-
二溴聯苯醚 (Dibromodiphenyl ether)		mg/kg	5	n.d.	-
三溴聯苯醚 (Tribromodiphenyl ether)		mg/kg	5	n.d.	-
四溴聯苯醚 (Tetrabromodiphenyl ether)	 參考IEC 62321-6: 2015·以氣相層析儀/質	mg/kg	5	n.d.	-
五溴聯苯醚 (Pentabromodiphenyl ether)	参与IEC 02321-0. 2013・以無伯層が 酸/貝 譜儀分析・(With reference to IEC 62321-	mg/kg	5	n.d.	-
六溴聯苯醚 (Hexabromodiphenyl ether)	6: 2015, analysis was performed by	mg/kg	5	n.d.	-
七溴聯苯醚 (Heptabromodiphenyl ether)	GC/MS.)	mg/kg	5	n.d.	-
八溴聯苯醚 (Octabromodiphenyl ether)	(GC/1VI3.)	mg/kg	5	n.d.	-
九溴聯苯醚 (Nonabromodiphenyl ether)		mg/kg	5	n.d.	-
十溴聯苯醚 (Decabromodiphenyl ether)		mg/kg	5	n.d.	-
多溴聯苯醚總和 (Sum of PBDEs)		mg/kg	-	n.d.	1000
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl		mg/kg	50	n.d.	1000
phthalate (BBP)) (CAS No.: 85-68-7)					
鄰苯二甲酸二丁酯 (DBP) (Dibutyl		mg/kg	50	n.d.	1000
phthalate (DBP)) (CAS No.: 84-74-2)					
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl		mg/kg	50	n.d.	1000
phthalate (DIBP)) (CAS No.: 84-69-5)					
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-		mg/kg	50	n.d.	1000
(2-ethylhexyl) phthalate (DEHP)) (CAS					
No.: 117-81-7)	⇔ ★150 0321 0 2017 以与45尺长/55				
鄰苯二甲酸二異壬酯 (DINP) (Diisononyl	參考IEC 62321-8: 2017,以氣相層析儀/質	mg/kg	50	n.d.	_
phthalate (DINP)) (CAS No.: 28553-12-	譜儀分析。(With reference to IEC 62321-				
0, 68515-48-0)	8: 2017, analysis was performed by				
鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl	GC/MS.)	mg/kg	50	n.d.	-
phthalate (DIDP)) (CAS No.: 26761-40-					
0, 68515-49-1)					
鄰苯二甲酸二正辛酯 (DNOP) (Di-n-octyl		mg/kg	50	n.d.	-
phthalate (DNOP)) (CAS No.: 117-84-0)					
鄰苯二甲酸二正己酯 (DNHP) (Di-n-hexyl		mg/kg	50	n.d.	-
phthalate (DNHP)) (CAS No.: 84-75-3)					
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測試項目	測試方法	單位	MDL	結果	限值
(Test Items)	(Method)	(Unit)		(Result)	(Limit)
				No.1	
鄰苯二甲酸二(C7-11支鏈與直鏈)烷基酯		mg/kg	50	n.d.	-
(DHNUP) (1,2-Benzenedicarboxylic					
acid, di-C7-11-branched and linear					
alkyl esters (DHNUP)) (CAS No.: 68515-					
42-4)	参考IEC 62321-8: 2017,以氣相層析儀/質				
1,2-苯二酸-二(C6-8支鏈)烷基酯(富C7)	譜儀分析。(With reference to IEC 62321-	mg/kg	50	n.d.	-
(DIHP) (1,2-Benzenedicarboxylic acid,	8: 2017, analysis was performed by				
di-C6-8-branched alkyl esters, C7-rich	GC/MS.)				
(DIHP)) (CAS No.: 71888-89-6)					
鄰苯二甲酸二(2-甲氧基乙基)酯 (DMEP)		mg/kg	50	n.d.	-
(Bis-(2-methoxyethyl) phthalate					
(DMEP)) (CAS No.: 117-82-8)					
氟 (F) (Fluorine (F)) (CAS No.: 14762-94-		mg/kg	50	n.d.	
8)					
氯 (CI) (Chlorine (CI)) (CAS No.: 22537-	 參考BS EN 14582: 2016·以離子層析儀分	mg/kg	50	n.d.	-
15-1)	が。(With reference to BS EN 14582:				
溴 (Br) (Bromine (Br)) (CAS No.: 10097-	2016, analysis was performed by IC.)	mg/kg	50	n.d.	-
32-2)	2010, analysis was performed by re.)				
碘 (I) (Iodine (I)) (CAS No.: 14362-44-8)		mg/kg	50	n.d.	-
全氟辛酸 (PFOA)及其鹽類	參考CEN/TS 15968: 2010 · 以液相層析串	mg/kg	0.01	n.d.	-
(Perfluorooctanoic acid (PFOA) and it's	聯質譜儀分析。(With reference to				
salt) (CAS No.: 335-67-1 and its salts)	CEN/TS 15968: 2010, analysis was				
	performed by LC/MS/MS.)				
全氟辛烷磺酸(PFOS)及其鹽類	參考CEN/TS 15968: 2010,以液相層析串	mg/kg	0.01	n.d.	-
(Perfluorooctane sulfonate (PFOS) and	聯質譜儀分析。(With reference to				
it's salt) (CAS No.: 1763-23-1 and its	CEN/TS 15968: 2010, analysis was				
salts)	performed by LC/MS/MS.)				
富馬酸二甲酯 (DMFu) (Dimethyl	參考US EPA 3550C: 2007,以氣相層析儀/	mg/kg	0.1	n.d.	-
fumarate (DMFu)) (CAS No.: 624-49-7)	質譜儀分析。(With reference to US EPA				
	3550C: 2007, analysis was performed by				
	GC/MS.)				

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測試項目	測試方法	單位	MDL	結果	限值
(Test Items)	(Method)	(Unit)		(Result)	(Limit)
				No.1	
聚氯乙烯 (Polyvinyl chloride) (PVC)	參考ASTM E1252: 2013 · 以傅立葉轉換紅	**	-	Negative	-
	外線光譜儀及焰色法分析。(With				
	reference to ASTM E1252: 2013, analysis				
	was performed by FT-IR and Flame Test.)				
甲醛 (Formaldehyde) (CAS No.: 50-00-	參考ISO 17226-1: 2018‧以液相層析儀/	mg/kg	3	n.d.	-
0)	二極體陣列偵測器分析。(With reference				
	to ISO 17226-1: 2018, analysis was				
	performed by LC/DAD.)				
銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-	參考US EPA 3052: 1996,以感應耦合電漿	mg/kg	2	n.d.	-
36-0)	發射光譜儀分析。(With reference to US				
	EPA 3052: 1996, analysis was performed				
	by ICP-OES.)				
鈹 (Be) (Beryllium (Be)) (CAS No.: 7440-	參考US EPA 3052: 1996·以感應耦合電漿	mg/kg	2	n.d.	-
41-7)	發射光譜儀分析。(With reference to US				
	EPA 3052: 1996, analysis was performed				
	by ICP-OES.)				
磷 (P) (Phosphorus (P)) (CAS No.: 7723-	參考US EPA 3052: 1996 · 以感應耦合電漿	mg/kg	2	3340	-
14-0)	發射光譜儀分析。(With reference to US				
	EPA 3052: 1996, analysis was performed				
	by ICP-OES.)				
鈷 (Co) (Cobalt (Co)) (CAS No.: 7440-	參考US EPA 3052: 1996 · 以感應耦合電漿	mg/kg	2	n.d.	-
48-4)	發射光譜儀分析。(With reference to US				
	EPA 3052: 1996, analysis was performed				
Th (A) (A) (CACAL 7440	by ICP-OES.)	/1	2	,	
砷 (As) (Arsenic (As)) (CAS No.: 7440-	參考US EPA 3052: 1996,以感應耦合電漿	mg/kg	2	n.d.	-
38-2)	發射光譜儀分析。(With reference to US				
	EPA 3052: 1996, analysis was performed				
	by ICP-OES.)				



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測試項目	測試方法	單位	MDL	結果	限值
(Test Items)	(Method)	(Unit)		(Result)	(Limit)
				No.1	
六溴環十二烷及所有主要被辨別出的異構	參考IEC 62321: 2008,以氣相層析儀/質譜	mg/kg	5	n.d.	-
物(HBCDD) (α- HBCDD, β- HBCDD, γ-	儀分析。(With reference to IEC 62321:				
HBCDD) (Hexabromocyclododecane	2008, analysis was performed by				
(HBCDD) and all major	GC/MS.)				
diastereoisomers identified (α- HBCDD,					
β- HBCDD, γ- HBCDD)) (CAS No.:					
25637-99-4, 3194-55-6 (134237-51-7,					
134237-50-6, 134237-52-8))					

備註(Note):

- 1. mg/kg = ppm; 0.1wt% = 1000ppm
- 2. MDL = Method Detection Limit (方法偵測極限值)
- 3. n.d. = Not Detected (未檢出); 小於MDL / Less than MDL
- 4. "-" = Not Regulated (無規格值)
- 5. **= Qualitative analysis (No Unit) 定性分析(無單位)
- 6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
- 7. 全氟辛烷磺酸及其鹽類包含 (PFOS and its salts including):

CAS No.: 29081-56-9, 2795-39-3, 29457-72-5, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7.

- 8. 全氟辛酸及其鹽類包含 (PFOA and its salts including):
 - CAS No.: 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0.
- 9. 符合性結果之判定係以測試結果與限值做比較。(The statement of compliance conformity is based on comparison of testing results and limits.)



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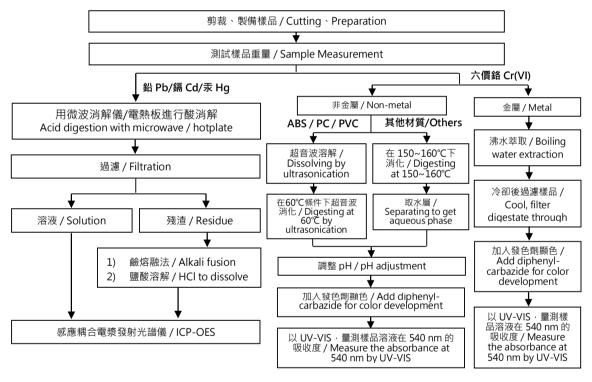
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重金屬流程圖 / Analytical flow chart of Heavy Metal

根據以下的流程圖之條件,樣品已完全溶解。(六價鉻測試方法除外)

These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr^{6+} test method excluded)



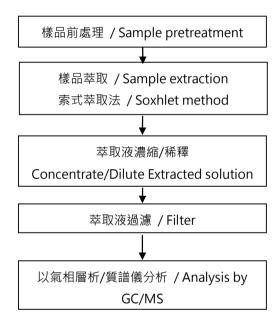


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多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART





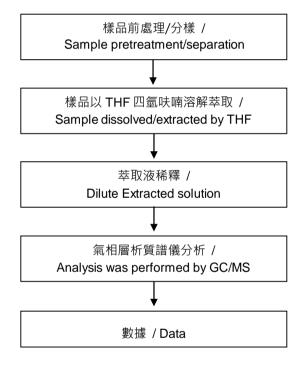
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可塑劑分析流程圖 / Analytical flow chart of phthalate content

【測試方法/Test method: IEC 62321-8】



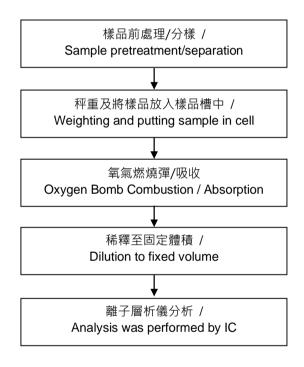


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鹵素分析流程圖 / Analytical flow chart of Halogen



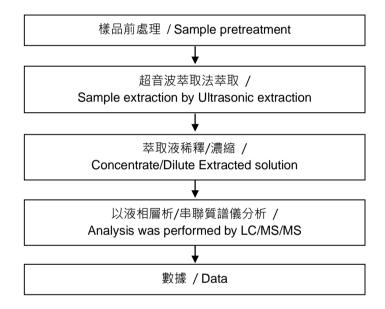


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全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS



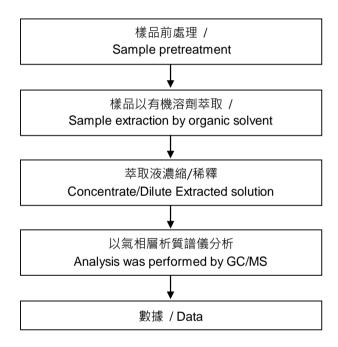


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台灣美泰樂表面處理股份有限公司 (METALOR COATINGS (TAIWAN) CORPORATION) 高雄市楠梓加工出口區東七街16-3號 (16-3, EAST 7TH ST., NAN-TZE EXPORT PROCESSING ZONE KAOHSIUNG, TAIWAN R.O.C.)

富馬酸二甲酯分析流程圖 / Analytical flow chart of Dimethyl Fumarate content





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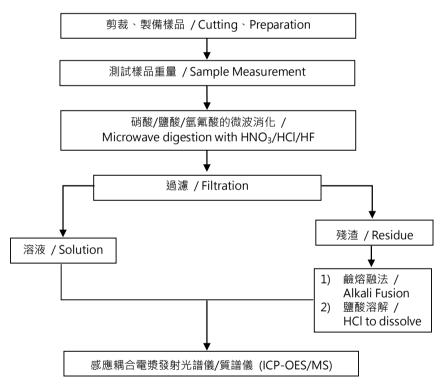
台灣美泰樂表面處理股份有限公司 (METALOR COATINGS (TAIWAN) CORPORATION) 高雄市楠梓加工出口區東七街16-3號 (16-3, EAST 7TH ST., NAN-TZE EXPORT PROCESSING ZONE KAOHSIUNG, TAIWAN R.O.C.)

重金屬流程圖 / Analytical flow chart of Heavy Metal

根據以下的流程圖之條件,樣品已完全溶解。

These samples were dissolved totally by pre-conditioning method according to below flow chart.

【参考方法/Reference method: US EPA 3051、US EPA 3052】



* US EPA 3051 方法未添加氫氟酸 / US EPA 3051 method does not add HF.

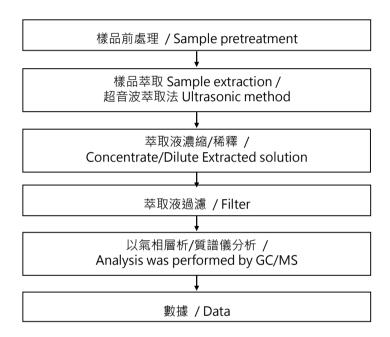


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台灣美泰樂表面處理股份有限公司 (METALOR COATINGS (TAIWAN) CORPORATION) 高雄市楠梓加工出口區東七街16-3號 (16-3, EAST 7TH ST., NAN-TZE EXPORT PROCESSING ZONE KAOHSIUNG, TAIWAN R.O.C.)

六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD





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台灣美泰樂表面處理股份有限公司 (METALOR COATINGS (TAIWAN) CORPORATION) 高雄市楠梓加工出口區東七街16-3號 (16-3, EAST 7TH ST., NAN-TZE EXPORT PROCESSING ZONE KAOHSIUNG, TAIWAN R.O.C.)

* 照片中如有箭頭標示,則表示為實際檢測之樣品/部位. * (The tested sample / part is marked by an arrow if it's shown on the photo.)

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** 報告結尾 (End of Report) **