

**Test Report** 

號碼(No.): ETR22A04333M02 頁數(Page): 1 of 13 日期(Date): 04-Nov-2022

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, 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 the applicant as):

樣品名稱(Sample Name) Au PLATING LAYER

\_\_\_\_\_\_

收件日(Sample Receiving Date)

26-Oct-2022

測試期間(Testing Period)

26-Oct-2022 to 01-Nov-2022

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).)

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

測試結果(Test Results)

論(Conclusion)

(1) 根據客戶所選擇的部位測試,其編、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 selected part of 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.)

Signed for and on behalf SĞS TAIWAN LTD. Chemical Laboratory - Taipei





# **Test Report**

號碼(No.): ETR22A04333M02 日期(Date): 04-Nov-2022 頁數(Page): 2 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

#### 測試部位敘述 (Test Part Description)

No.1 : 金色片狀鍍層 (PLATING LAYER OF GOLDEN COLORED SHEET)

No.2 : 金色片狀(含鍍層) (GOLDEN COLORED SHEET (INCLUDING THE PLATING LAYER))

#### 測試結果 (Test Results)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)		限值 (Limit)
(13211131113)	(meanea)	(0,		No.1	No.2	(=====,
鎘 (Cd) (Cadmium (Cd)) (CAS No.: 7440-43-9)	酸洗脫鍍層·參考IEC 62321-5: 2013·以感應耦合電漿發射光譜儀 分析。(IEC 62321-5: 2013 application of modified digestion by surface etching, analysis was performed by ICP-OES.)	mg/kg	2	n.d.		100
鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1)	酸洗脫鍍層·參考IEC 62321-5: 2013·以感應耦合電漿發射光譜儀 分析。(IEC 62321-5: 2013 application of modified digestion by surface etching, analysis was performed by ICP-OES.)	mg/kg	2	n.d.		1000
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-97-6)	酸洗脫鍍層·參考IEC 62321-4: 2013+ AMD1: 2017·以感應耦合 電漿發射光譜儀分析。(IEC 62321- 4: 2013+AMD1: 2017 application of modified digestion by surface etching, analysis was performed by ICP-OES.)	mg/kg	2	n.d.		1000
六價鉻 (Hexavalent Chromium) Cr(VI) (CAS No.: 18540-29-9) (#2)	參考IEC 62321-7-1: 2015 · 以紫外光-可見光分光光度計分析。(With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.)	μg/cm²	0.1	n.d.		-



# **Test Report**

號碼(No.): ETR22A04333M02 日期(Date): 04-Nov-2022 頁數(Page): 3 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

測試項目	測試方法	單位	MDL	結果		限值
(Test Items)	(Method)	(Unit)		(Res	sult)	(Limit)
				No.1	No.2	
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 (Tetrabromobiphenyl)		mg/kg	5		n.d.	-
五溴聯苯 (Pentabromobiphenyl)		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)	參考IEC 62321-6: 2015 · 以氣相層	mg/kg	5		n.d.	-
多溴聯苯總和 (Sum of PBBs)	析儀/質譜儀分析。(With reference	mg/kg	-		n.d.	1000
一溴聯苯醚 (Monobromodiphenyl ether)	to IEC 62321-6: 2015, analysis	mg/kg	5		n.d.	-
二溴聯苯醚 (Dibromodiphenyl ether)	was performed by GC/MS.)	mg/kg	5		n.d.	-
三溴聯苯醚 (Tribromodiphenyl ether)		mg/kg	5		n.d.	-
四溴聯苯醚 (Tetrabromodiphenyl ether)		mg/kg	5		n.d.	-
五溴聯苯醚 (Pentabromodiphenyl ether)		mg/kg	5		n.d.	-
六溴聯苯醚 (Hexabromodiphenyl ether)		mg/kg	5		n.d.	-
七溴聯苯醚 (Heptabromodiphenyl ether)		mg/kg	5		n.d.	-
八溴聯苯醚 (Octabromodiphenyl ether)		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		mg/kg	50		n.d.	1000
benzyl phthalate (BBP)) (CAS No.: 85-						
68-7)						
鄰苯二甲酸二丁酯 (DBP) (Dibutyl	參考IEC 62321-8: 2017,以氣相層	mg/kg	50		n.d.	1000
phthalate (DBP)) (CAS No.: 84-74-2)	析儀/質譜儀分析。(With reference					
鄰苯二甲酸二(2-乙基己基)酯 (DEHP)	to IEC 62321-8: 2017, analysis	mg/kg	50		n.d.	1000
(Di-(2-ethylhexyl) phthalate (DEHP))	was performed by GC/MS.)	-				
(CAS No.: 117-81-7)						
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl		mg/kg	50		n.d.	1000
phthalate (DIBP)) (CAS No.: 84-69-5)						



# **Test Report**

號碼(No.): ETR22A04333M02 日期(Date): 04-Nov-2022

頁數(Page): 4 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

測試項目	測試方法	單位	MDL	結果		限值
(Test Items)	(Method)	(Unit)		(Result)		(Limit)
				No.1	No.2	
鄰苯二甲酸二異癸酯 (DIDP)		mg/kg	50		n.d.	-
(Diisodecyl phthalate (DIDP)) (CAS						
No.: 26761-40-0, 68515-49-1)	   參考IEC 62321-8: 2017,以氣相層					
鄰苯二甲酸二異壬酯 (DINP)	析儀/質譜儀分析。(With reference	mg/kg	50		n.d.	-
(Diisononyl phthalate (DINP)) (CAS	to IEC 62321-8: 2017, analysis					
No.: 28553-12-0, 68515-48-0)	was performed by GC/MS.)					
鄰苯二甲酸二正辛酯 (DNOP) (Di-n-		mg/kg	50		n.d.	-
octyl phthalate (DNOP)) (CAS No.:						
117-84-0)	(A + (					
六溴環十二烷及所有主要被辨別出的異 ####################################	參考IEC 62321: 2008 · 以氣相層析	mg/kg	5		n.d.	-
構物(HBCDD) (α- HBCDD, β- HBCDD,	儀/質譜儀分析。(With reference					
γ- HBCDD)	to IEC 62321: 2008, analysis was					
(Hexabromocyclododecane (HBCDD) and all major diastereoisomers	performed by GC/MS.)					
identified ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ -						
HBCDD)) (CAS No.: 25637-99-4,						
3194-55-6 (134237-51-7, 134237-						
50-6, 134237-52-8))						
氟 (F) (Fluorine (F)) (CAS No.: 14762-		mg/kg	50		444	-
94-8)		<i>J, J</i>				
氯 (CI) (Chlorine (CI)) (CAS No.:	参考BS EN 14582: 2016,以離子	mg/kg	50		n.d.	-
22537-15-1)	層析儀分析。(With reference to	3 3				
溴 (Br) (Bromine (Br)) (CAS No.:	BS EN 14582: 2016, analysis was	mg/kg	50		n.d.	-
10097-32-2)	performed by IC.)					
碘 (I) (lodine (I)) (CAS No.: 14362-44-		mg/kg	50		n.d.	-
8)						
全氟辛烷磺酸及其鹽類 (PFOS and its	參考CEN/TS 15968: 2010 · 以液相	μg/m²	0.5	n.d.		-
salts) (CAS No.: 1763-23-1 and its	層析串聯質譜儀分析。(With					
salts)	reference to CEN/TS 15968:					
全氟辛酸及其鹽類 (PFOA and its salts)	2010, analysis was performed by	μg/m²	0.5	n.d.		-
(CAS No.: 335-67-1 and its salts)	LC/MS/MS.)					



## **Test Report**

號碼(No.): ETR22A04333M02 日期(Date): 04-Nov-2022 頁數(Page): 5 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)		限值 (Limit)
				No.1	No.2	
銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-36-0)	酸洗脫鍍層·參考US EPA 3050B: 1996·以感應耦合電漿發射光譜儀 分析。(US EPA 3050B: 1996	mg/kg	2	n.d.		-
鈹 (Be) (Beryllium (Be)) (CAS No.: 7440-41-7)	application of modified digestion by surface etching, analysis was performed by ICP-OES.)	mg/kg	2	n.d.		-

#### 備註(Note):

- 1. mg/kg = ppm; 0.1wt% = 0.1% = 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. "---" = Not Conducted (未測試項目)
- 6. 全氟辛烷磺酸及其鹽類包含等物質 (PFOS and its salts including): CAS No.: 1763-23-1, 2795-39-3, 29457-72-5, 29081-56-9, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7, 91036-71-4, 4021-47-0 and others.
- 7. 全氟辛酸及其鹽類包含等物質 (PFOA and its salts including): CAS No.: 335-67-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0, 3825-26-1 and others.
- 8. (#2) =
  - a. 當六價鉻結果大於 $0.13~\mu g/cm^2 \cdot 表示樣品表層含有六價鉻。$  (The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than  $0.13~\mu g/cm^2$ . The sample coating is considered to contain Cr(VI).) b. 當六價鉻結果為n.d. (濃度小於 $0.10~\mu g/cm^2$ ) · 表示表層不含六價鉻。 (The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than  $0.10~\mu g/cm^2$ ). The coating is considered a non-Cr(VI) based coating) c. 當六價鉻結果介於0.10~D0.13  $\mu g/cm^2$  時,無法確定塗層是否含有六價鉻。 (The result between  $0.10~\mu g/cm^2$  and  $0.13~\mu g/cm^2$  is considered to be inconclusive unavoidable coating variations may influence the determination.)
- 9. 除非另有說明·參照ILAC-G8:09/2019·採用簡單二元(w=0)允收規則進行符合性判定;根據此規則·符合性結果之判定係以測試結果與限值做比較。(Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.)
- 10. 本報告為 ETR22A04333 之異動報告。(This is the additional test report of ETR22A04333.)



## **Test Report**

號碼(No.): ETR22A04333M02

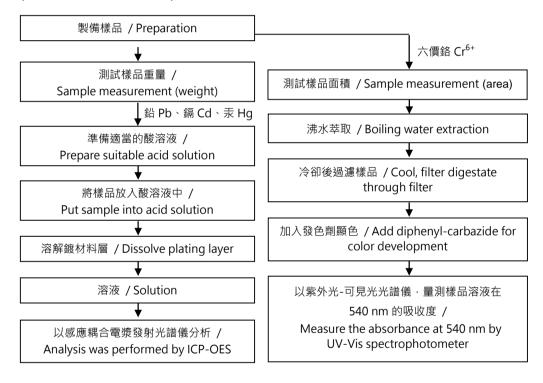
日期(Date): 04-Nov-2022

頁數(Page): 6 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

#### 鍍層重金屬測試流程圖 / Flow chart of stripping method for metal analysis

根據以下的流程圖之條件.樣品之外部鍍屬已完全溶解。( 六價鉻測試方法除外 ) / The plating layer of samples were dissolved totally by pre-conditioning method according to below flow chart. ( $Cr^{6+}$  test method excluded)



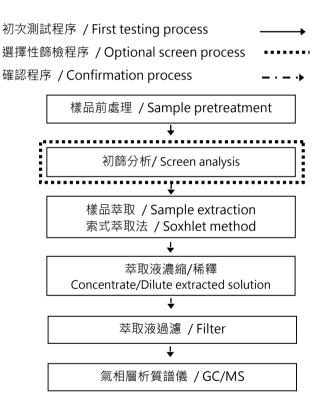


# **Test Report**

號碼(No.): ETR22A04333M02 日期(Date): 04-Nov-2022 頁數(Page): 7 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

#### 多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs





# **Test Report**

號碼(No.): ETR22A04333M02

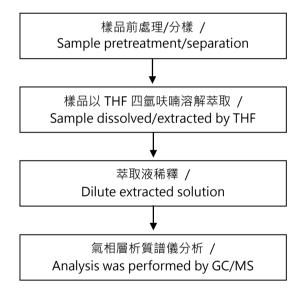
日期(Date): 04-Nov-2022

頁數(Page): 8 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

可塑劑分析流程圖 / Analytical flow chart - Phthalate

【測試方法/Test method: IEC 62321-8】





# **Test Report**

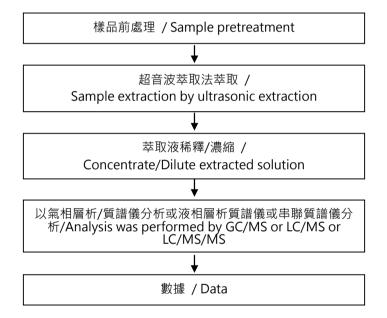
號碼(No.): ETR22A04333M02

日期(Date): 04-Nov-2022

頁數(Page): 9 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

全氟化合物(包含全氟辛酸/全氟辛烷磺酸/其相關化合物等等)分析流程圖 / Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)





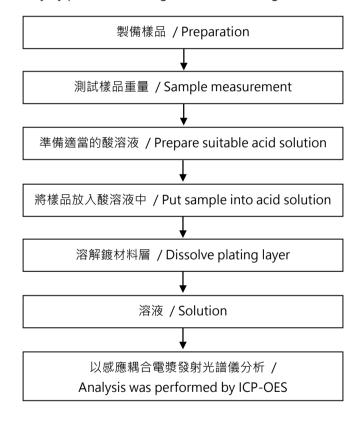
## **Test Report**

號碼(No.): ETR22A04333M02 日期(Date): 04-Nov-2022 頁數(Page): 10 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

#### 鍍層重金屬測試流程圖 / Flow chart of stripping method for metal analysis

根據以下的流程圖之條件,樣品之外部鍍層已完全溶解。 / The plating layer of samples were dissolved totally by pre-conditioning method according to below flow chart.



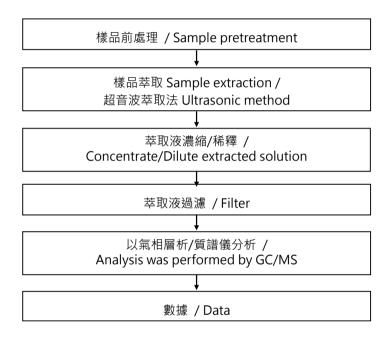


# **Test Report**

號碼(No.): ETR22A04333M02 日期(Date): 04-Nov-2022 頁數(Page): 11 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

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



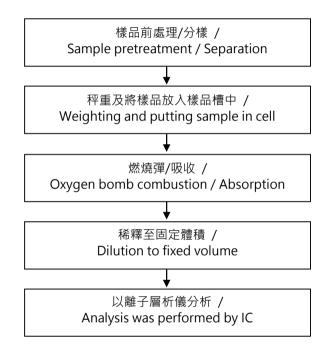


# **Test Report**

號碼(No.): ETR22A04333M02 日期(Date): 04-Nov-2022 頁數(Page): 12 of 13

旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

#### 鹵素分析流程圖 / Analytical flow chart - Halogen





# **Test Report**

號碼(No.): ETR22A04333M02

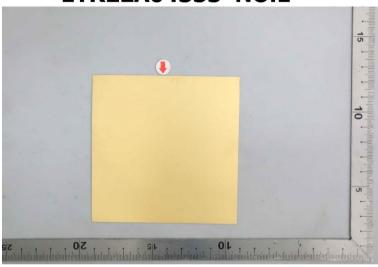
日期(Date): 04-Nov-2022

頁數(Page): 13 of 13

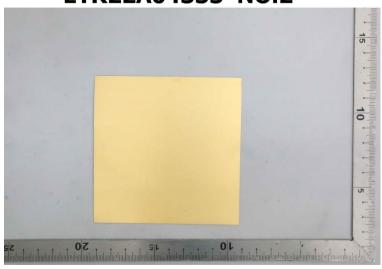
旭德科技股份有限公司 (SUBTRON TECHNOLOGY CO., LTD.) 新竹縣湖口工業區光復北路8號 (NO. 8, KUANG FU NORTH ROAD, HU KOU, HSIN-CHU INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R. O. C.)

\* 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.)

#### ETR22A04333 NO.1



#### ETR22A04333 NO.2



\*\* 報告結尾 (End of Report) \*\*