

**Test Report** 

號碼(No.): EKR20B01722 日期(Date): 04-Dec-2020 頁數(Page): 1 of 13

耀漳企業有限公司 (JAU JANQ ENTERPRISE CO., LTD.)

高雄市苓雅區廈門街111號 (NO. 111, SIAMEN ST., LINGYA DISTRICT, KAOHSIUNG CITY 802, 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) : 耀漳企業有限公司 (JAU JANQ ENTERPRISE CO., LTD.)

樣品名稱(Sample Name) : J001 SERIES SOLDER (純錫 PURE TIN 99.99)

樣品型號(Style/Item No.) : J001S20 SOLDER. J001S26 SOLDER. J001S28 SOLDER

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

收件日(Sample Receiving Date)

: 24-Nov-2020

測試期間(Testing Period)

24-Nov-2020 to 01-Dec-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).) 請參閱下一頁 (Please refer to following pages.)

測試結果(Test Results)

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/技術組理 **SGS** Ray Chang, Ph.D. Manager-Tin Signed for and on behalf of SGS TAIWAN LTD. 作學實驗室-高雄/Chemical Laboratory-Kaohsiung



PIN CODE: 1F4RR992



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高雄市苓雅區廈門街111號 (NO. 111, SIAMEN ST., LINGYA DISTRICT, KAOHSIUNG CITY 802, TAIWAN (R. O. C.))

### 測試部位敘述 (Test Part Description)

No.1 : 銀色金屬 (SILVER COLORED METAL)

#### 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 by ICP-OES.)	mg/kg	2	8.88	1000
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 (Chromium VI) Cr(VI) (CAS No.:	參考IEC 62321-7-1: 2015,以紫外光-可見	μg/cm²	0.1	n.d.	-
18540-29-9) (#2)	光分光光度計分析。(With reference to				
	IEC 62321-7-1: 2015, analysis was				
	performed by UV-VIS.)				
一溴聯苯 (Monobromobiphenyl)		mg/kg	5	n.d.	-
二溴聯苯 (Dibromobiphenyl)	参考IEC 62321-6: 2015·以氣相層析儀/質 ·譜儀分析。(With reference to IEC 62321- 6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.	-
四溴聯苯 (Tetrabromobipenyl)		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)		mg/kg	5	n.d.	-
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.	1000



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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	
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)	夢名にC 02321-0. 2013・以親伯唐が 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/1413.)	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	1	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)	參考IEC 62321-8: 2017 · 以氣相層析儀/質				
鄰苯二甲酸二異壬酯 (DINP) (Diisononyl	譜儀分析。(With reference to IEC 62321-	mg/kg	50	n.d.	-
phthalate (DINP)) (CAS No.: 28553-12-	8: 2017, analysis was performed by				
0, 68515-48-0)	GC/MS.)				
鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl		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)					
鄰苯二甲酸二正戊酯 (DNPP) (Di-n-		mg/kg	50	n.d.	-
pentyl phthalate (DNPP)) (CAS No.:					
131-18-0)					



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高雄市苓雅區廈門街111號 (NO. 111, SIAMEN ST., LINGYA DISTRICT, KAOHSIUNG CITY 802, TAIWAN (R. O. C.))

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
氟 (F) (Fluorine (F)) (CAS No.: 14762-94-8)		mg/kg	50	n.d.	-
氯 (Cl) (Chlorine (Cl)) (CAS No.: 22537- 15-1)	參考BS EN 14582: 2016 · 以離子層析儀分析。(With reference to BS EN 14582:	mg/kg	50	n.d.	-
溴 (Br) (Bromine (Br)) (CAS No.: 10097- 32-2)	2016, analysis was performed by IC.)	mg/kg	50	n.d.	-
碘 (I) (Iodine (I)) (CAS No.: 14362-44-8)		mg/kg	50	n.d.	=
銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-36-0)	參考US EPA 3052: 1996.以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	-
鈹 (Be) (Beryllium (Be)) (CAS No.: 7440-41-7)	參考US EPA 3052: 1996.以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	-
磷 (P) (Phosphorus (P)) (CAS No.: 7723- 14-0)	參考US EPA 3052: 1996.以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	-
六溴環十二烷及所有主要被辨別出的異構物 (HBCDD) ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ - HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ - HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	參考IEC 62321: 2008·以氣相層析儀/質譜儀分析。(With reference to IEC 62321: 2008, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
全氟辛酸 (PFOA)及其鹽類 (Perfluorooctanoic acid (PFOA) and it's salt) (CAS No.: 335-67-1 and its salts)	參考CEN/TS 15968: 2010 · 以液相層析串 聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛烷磺酸(PFOS)及其鹽類 (Perfluorooctane sulfonate (PFOS) and it's salt) (CAS No.: 1763-23-1 and its salts)	參考CEN/TS 15968: 2010 · 以液相層析串 聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-

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### 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. 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.
- 6. 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.
- 7. (#2) =
  - a. 當六價鉻結果大於 $0.13~\mu g/cm^2$ ·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/cm²) · 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/cm²). The coating is considered a non-Cr(VI) based coating)
  - c. 當六價鉻結果介於 0.10 及 0.13  $\mu g/cm^2$  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.)
- 8. 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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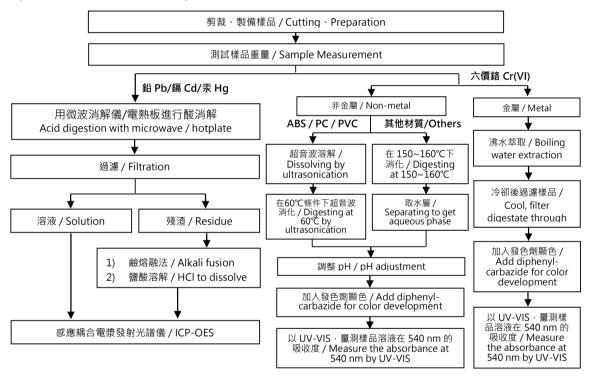
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高雄市苓雅區廈門街111號 (NO. 111, SIAMEN ST., LINGYA DISTRICT, KAOHSIUNG CITY 802, TAIWAN (R. O. C.))

#### 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。(六價鉻測試方法除外)

These samples were dissolved totally by pre-conditioning method according to below flow chart. ( Cr<sup>6+</sup> test method excluded )





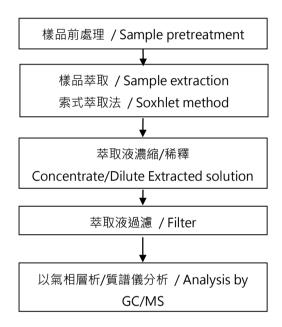
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### 多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART



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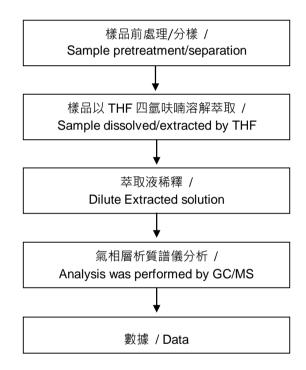
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### 可塑劑分析流程圖 / Analytical flow chart of phthalate content

【測試方法/Test method: IEC 62321-8】





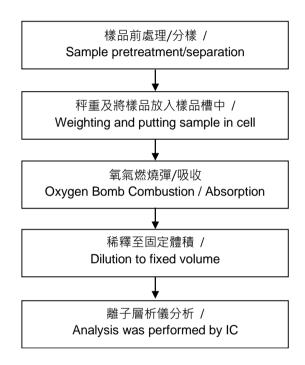
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#### 鹵素分析流程圖 / Analytical flow chart of Halogen



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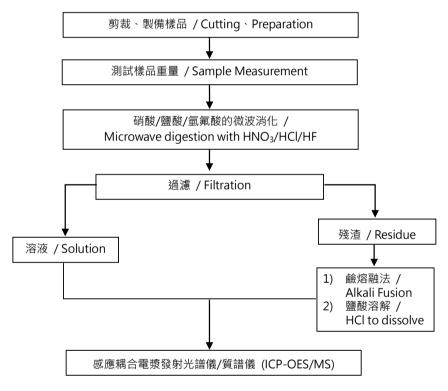
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### 重金屬流程圖 / Analytical flow chart of Heavy Metal

根據以下的流程圖之條件,樣品已完全溶解。

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

【參考方法/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.



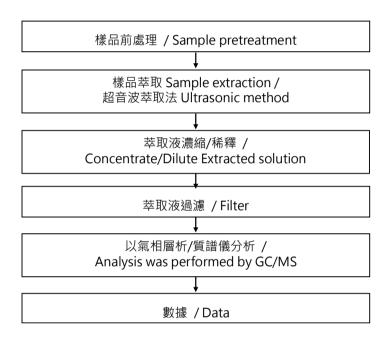
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### 六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD





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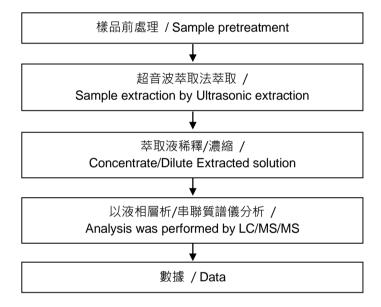
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### 全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS





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\* 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) \*\*