

**Test Report** 

頁數(Page): 1 of 11 號碼(No.): ETR21601029 日期(Date): 15-Jun-2021

健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.)

桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

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) 健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.)

樣品名稱(Sample Name) NICKEL PLATING (鍍層-電鍍鎳)

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

收件日(Sample Receiving Date)

07-Jun-2021

測試期間(Testing Period)

測試結果(Test Results)

07-Jun-2021 to 15-Jun-2021

依據客戶指定,參考RoHS 2011/65/EU Annex II及其修訂指令(EU) 2015/863測 測試需求(Test Requested) (1)

> 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).)

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.)

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





**Test Report** 

號碼(No.): ETR21601029 日期(Date): 15-Jun-2021 頁數(Page): 2 of 11

健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.)

桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

#### 測試部位敘述 (Test Part Description)

No.1 : 銀色片狀 (SILVER COLORED SHEET)

#### 測試結果 (Test Results)

測試項目	測試方法	單位	MDL	結果
(Test Items)	(Method)	(Unit)		(Result)
				No.1
鎘 (Cd) (Cadmium (Cd)) (CAS No.: 7440-43-9)	參考IEC 62321-5: 2013·以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.
鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1)		mg/kg	2	n.d.
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439- 97-6)	參考IEC 62321-4: 2013+ AMD1: 2017·以感應耦合 電漿發射光譜儀分析。(With reference to IEC	mg/kg	2	n.d.
37-6)	62321-4: 2013+ AMD1: 2017, analysis was			
	performed by ICP-OES.)			
六價鉻 (Hexavalent Chromium) Cr(VI)	參考IEC 62321-7-1: 2015·以紫外光-可見光分光光	μg/cm²	0.1	n.d.
(CAS No.: 18540-29-9) (#2)	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)		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)	參考IEC 62321-6: 2015·以氣相層析儀/質譜儀分	mg/kg	5	n.d.
六溴聯苯 (Hexabromobiphenyl)	析。(With reference to IEC 62321-6: 2015, analysis	mg/kg	5	n.d.
七溴聯苯 (Heptabromobiphenyl)	was performed by GC/MS.)	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.



# **Test Report**

號碼(No.): ETR21601029 日期(Date): 15-Jun-2021 頁數(Page): 3 of 11

健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.)

桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) 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)		mg/kg	5	n.d.
五溴聯苯醚 (Pentabromodiphenyl ether)	參考IEC 62321-6: 2015·以氣相層析儀/質譜儀分	mg/kg	5	n.d.
六溴聯苯醚 (Hexabromodiphenyl ether)	析。(With reference to IEC 62321-6: 2015, analysis	mg/kg	5	n.d.
七溴聯苯醚 (Heptabromodiphenyl ether)	was performed by GC/MS.)	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	1	n.d.
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP)) (CAS No.: 85-68-7)	參考IEC 62321-8: 2017·以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP)) (CAS No.: 84-74-2)	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di- (2-ethylhexyl) phthalate (DEHP)) (CAS No.: 117-81-7)	參考IEC 62321-8: 2017·以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)	參考IEC 62321-8: 2017·以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
氟 (F) (Fluorine (F)) (CAS No.: 14762-94-8)		mg/kg	50	n.d.
氯 (Cl) (Chlorine (Cl)) (CAS No.: 22537- 15-1)	参考BS EN 14582: 2016·以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was	mg/kg	50	n.d.
溴 (Br) (Bromine (Br)) (CAS No.: 10097- 32-2)	performed by IC.)	mg/kg	50	n.d.
碘 (I) (Iodine (I)) (CAS No.: 14362-44-8)		mg/kg	50	n.d.



## **Test Report**

號碼(No.): ETR21601029 日期(Date): 15-Jun-2021 頁數(Page): 4 of 11

健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.)

桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
全氟辛烷磺酸及其鹽類 (PFOS and its salts) (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.
全氟辛酸及其鹽類 (PFOA and its salts) (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.
鈹 (Be) (Beryllium (Be)) (CAS No.: 7440-41-7)	多考US EPA 3050B: 1996,以感應耦合電漿發射光譜 儀分析。(With reference to US EPA 3050B: 1996, analysis was performed by ICP-OES.)		2	n.d.
銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-36-0)	參考US EPA 3050B: 1996.以感應耦合電漿發射光譜 儀分析。(With reference to US EPA 3050B: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.

#### 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 μg/cm²·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 μg/cm². 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 μg/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 μg/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.)



## **Test Report**

號碼(No.): ETR21601029 日期(Date): 15-Jun-2021

頁數(Page): 5 of 11

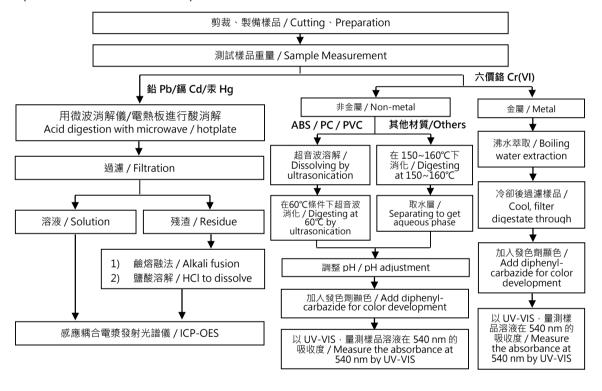
健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.)

桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

#### 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)





## **Test Report**

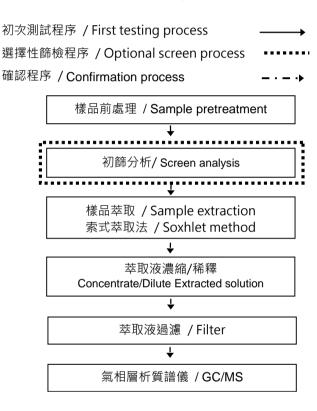
號碼(No.): ETR21601029 日期(Date): 15-Jun-2021

頁數(Page): 6 of 11

健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.)

桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

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





# **Test Report**

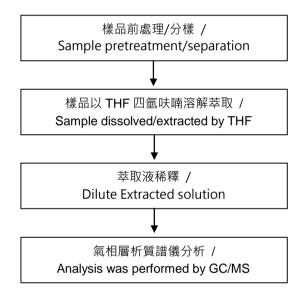
號碼(No.): ETR21601029 日期(Date): 15-Jun-2021 頁數(Page): 7 of 11

健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.)

桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

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

【測試方法/Test method: IEC 62321-8】





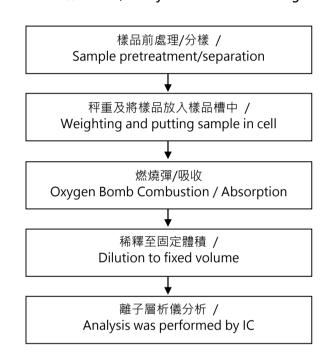
## **Test Report**

號碼(No.): ETR21601029 日期(Date): 15-Jun-2021 頁數(Page): 8 of 11

健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.)

桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

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



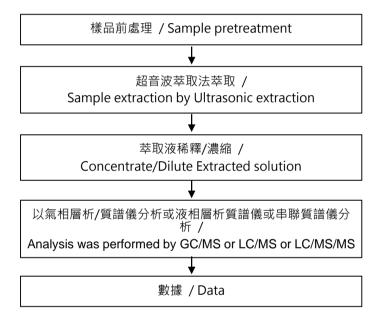


## **Test Report**

號碼(No.): ETR21601029 日期(Date): 15-Jun-2021 頁數(Page): 9 of 11

健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.) 桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

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**

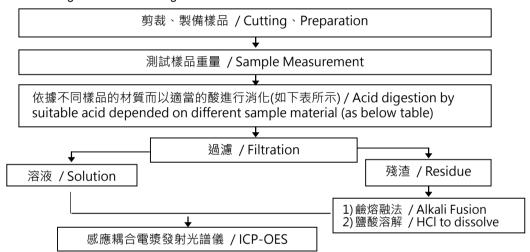
號碼(No.): ETR21601029 日期(Date): 15-Jun-2021 頁數(Page): 10 of 11

健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.) 桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

#### 元素以 ICP-OES 分析的消化流程圖

(Flow Chart of digestion for the elements analysis performed by ICP-OES)

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.



鋼,銅,鋁,焊錫 / Steel, copper, aluminum, solder	王水,硝酸,鹽酸,氫氟酸,雙氧水 /
	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
玻璃 / Glass	硝酸,氫氟酸 / HNO₃/HF
金,鉑,鈀,陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO₃
塑膠 / Plastic	硫酸,雙氧水,硝酸,鹽酸 / H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
其他 / Others	加入適當的試劑至完全溶解 / Added appropriate reagent to total digestion



## **Test Report**

號碼(No.): ETR21601029 日期(Date): 15-Jun-2021 頁數(Page): 11 of 11

健策精密工業股份有限公司 (JENTECH PRECISION INDUSTRIAL CO., LTD.)

桃園市龜山區華亞科技園區科技一路40號 (NO. 40, KEJI 1ST RD., GUEISHAN DISTRICT, TAOYUAN CITY 333, TAIWAN)

\* 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.)

#### ETR21601029



\*\* 報告結尾 (End of Report) \*\*