

# **Test Report**

號碼(No.): ETR20B00137M01 日期(Date): 09-Nov-2020 頁數(Page): 1 of 12

高柏科技股份有限公司 (T-GLOBAL TECHNOLOGY CO., LTD.) 桃園市桃園區大仁路50巷33號 (NO. 33, LN. 50, DAREN RD., TAOYUAN DISTRICT, TAOYUAN CITY 33068, 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):

樣品名稱(Sample Name) : THERMAL PAD (導熱矽膠片)

樣品型號(Style/Item No.) : H48-6G

收件日(Sample Receiving Date) : 02-Nov-2020

測試期間(Testing Period) : 02-Nov-2020 to 09-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.)

Troy Chang / Manager - Vec SGS
Signed for and behalf of SGS TAIWAN LTD.
Chemical Laboratory - Taipei





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#### 測試部位敘述 (Test Part Description)

No.1 : 淺灰色片狀 (LT. GRAY 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-	參考IEC 62321-5: 2013 · 以感應耦合電漿發射光	mg/kg	2	n.d.
43-9)	譜儀分析。(With reference to IEC 62321-5:			
	2013, analysis was performed by ICP-OES.)			
鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1)	參考IEC 62321-5: 2013,以感應耦合電漿發射光	mg/kg	2	n.d.
	譜儀分析。(With reference to IEC 62321-5:			
	2013, analysis was performed by ICP-OES.)			
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-	參考IEC 62321-4: 2013+ AMD1: 2017,以感應耦	mg/kg	2	n.d.
97-6)	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 Cr(VI) (Hexavalent Chromium	參考IEC 62321-5: 2013, IEC 62321-7-2: 2017 ·	mg/kg	8	n.d.
Cr(VI)) (CAS No.: 18540-29-9)	以感應耦合電漿發射光譜儀、紫外光-可見光分光光			
	度計分析。(With reference to IEC 62321-5:			
	2013, IEC 62321-7-2: 2017, analysis was			
	performed by ICP-OES, 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,	mg/kg	5	n.d.
七溴聯苯 (Heptabromobiphenyl)	analysis 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.



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測試項目	測試方法	單位	MDL	結果
(Test Items)	(Method)	(Unit)		(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)	参考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,	mg/kg	5	n.d.
七溴聯苯醚 (Heptabromodiphenyl ether)	analysis 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	ı	n.d.
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-	參考IEC 62321-8: 2017·以氣相層析儀/質譜儀分	mg/kg	50	n.d.
(2-ethylhexyl) phthalate (DEHP)) (CAS	析。(With reference to IEC 62321-8: 2017,			
No.: 117-81-7)	analysis was performed by GC/MS.)			
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分	mg/kg	50	n.d.
phthalate (DIBP)) (CAS No.: 84-69-5)	析。(With reference to IEC 62321-8: 2017,			
	analysis was performed by GC/MS.)			
鄰苯二甲酸二丁酯 (DBP) (Dibutyl	參考IEC 62321-8: 2017,以氣相層析儀/質譜儀分	mg/kg	50	n.d.
phthalate (DBP)) (CAS No.: 84-74-2)	析。(With reference to IEC 62321-8: 2017,			
	analysis was performed by GC/MS.)			
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分	mg/kg	50	n.d.
phthalate (BBP)) (CAS No.: 85-68-7)	析。(With reference to IEC 62321-8: 2017,	<i>J, J</i>		
	analysis was performed by GC/MS.)			
鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl	參考IEC 62321-8: 2017·以氣相層析儀/質譜儀分	mg/kg	50	n.d.
phthalate (DIDP)) (CAS No.: 26761-40-	析。(With reference to IEC 62321-8: 2017,	9,9		
0, 68515-49-1)	analysis was performed by GC/MS.)			
	参考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分	mg/kg	50	n.d.
phthalate (DINP)) (CAS No.: 28553-12-	析。(With reference to IEC 62321-8: 2017,	1119/159	50	11.0.
0, 68515-48-0)	analysis was performed by GC/MS.)			
郷苯二甲酸二正辛酯 (DNOP) (Di-n-octyl	参考IEC 62321-8: 2017·以氣相層析儀/質譜儀分	ma/ka	50	n.d.
phthalate (DNOP)) (CAS No.: 117-84-0)	参与IEC 02321-0. 2017・以来作層が 譲/真語 譲力	mg/kg	30	11.U.
(CAS NO.: 117-84-0)	· · · · · · · · · · · · · · · · · · ·			
	analysis was performed by GC/MS.)			

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
六溴環十二烷及所有主要被辨別出的異構物(HBCDD) (α- HBCDD, β- HBCDD, γ-	参考IEC 62321: 2008 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321: 2008, analysis	mg/kg	5	No.1 n.d.
HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD,	was performed by GC/MS.)			
β- HBCDD, γ- HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))				
氟 (F) (Fluorine (F)) (CAS No.: 14762-94-8)	參考BS EN 14582: 2016,以離子層析儀分析。 (With reference to BS EN 14582: 2016, analysis was performed by IC.)	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: 2016, analysis was performed by IC.)	mg/kg	50	143
溴 (Br) (Bromine (Br)) (CAS No.: 10097- 32-2)	參考BS EN 14582: 2016,以離子層析儀分析。 (With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.
碘 (I) (lodine (I)) (CAS No.: 14362-44-8)	參考BS EN 14582: 2016,以離子層析儀分析。 (With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.
全氟辛酸及其鹽類 (PFOA and its salts) (CAS No.: 335-67-1 and its salts)	參考US EPA 3550C: 2007.以液相層析儀/質譜儀分析。(With reference to US EPA 3550C: 2007, analysis was performed by LC/MS.)	mg/kg	10	n.d.
全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 1763-23-1 and its salts)	參考US EPA 3550C: 2007.以液相層析儀/質譜儀分析。(With reference to US EPA 3550C: 2007, analysis was performed by LC/MS.)	mg/kg	10	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. (\*):

若鉻含量小於六價鉻之方法偵測極限值,則六價鉻為n.d.,不須再測試六價鉻。

The result of Cr(VI) is "n.d." as the result of Chromium (Cr) is less than the MDL of Cr(VI), and confirmation test of Cr(VI) is not required.

若鉻含量未小於六價鉻之方法偵測極限值,需進行六價鉻測試。

If the Chromium (Cr) content is not less than the MDL of Cr(VI), confirmation test of Cr(VI) is required.

8. 本報告為 ETR20B00137 之異動報告。(This is the additional test report of ETR20B00137.)



# **Test Report**

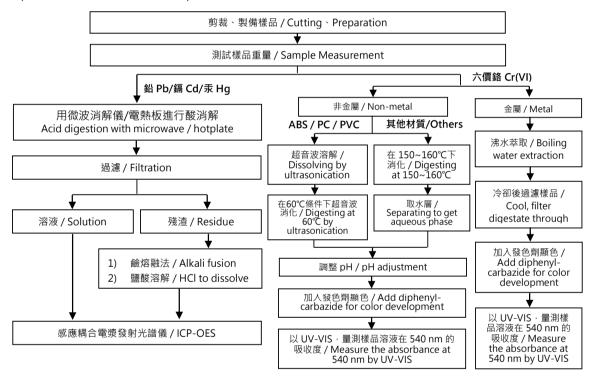
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#### 重金屬流程圖 / Analytical flow chart of Heavy Metal

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)



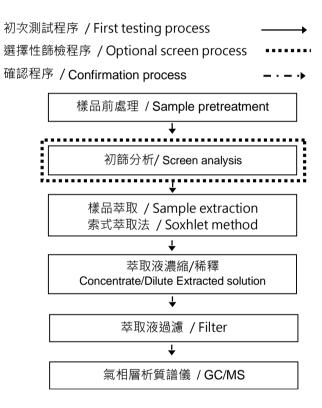


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#### 多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs





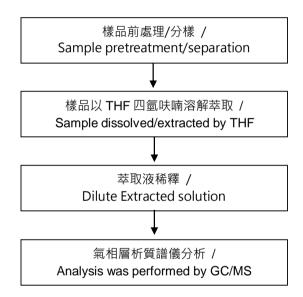
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#### 可塑劑分析流程圖 / Analytical flow chart - Phthalate

#### 【測試方法/Test method: IEC 62321-8】



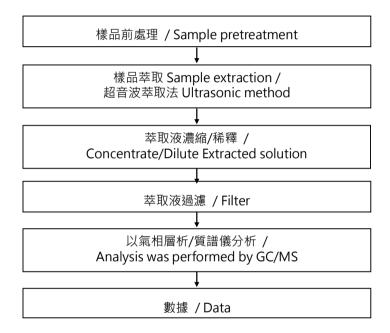


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#### 六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD



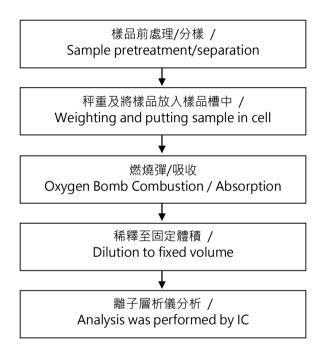


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#### 鹵素分析流程圖 / Analytical flow chart - Halogen



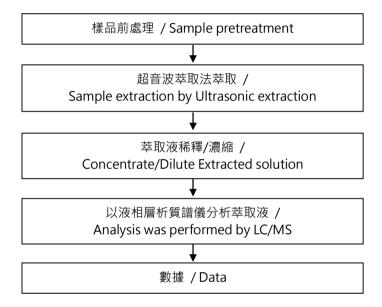


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#### 全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS





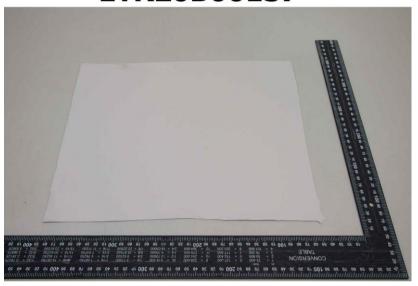
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\* 照片中如有箭頭標示,則表示為實際檢測之樣品/部位. \* (The tested sample / part is marked by an arrow if it's shown on the photo.)

#### ETR20B00137



\*\* 報告結尾 (End of Report) \*\*