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高柏科技有限公司

T-GLOBAL TECHNOLOGY CO., LTD.

桃園縣桃園市大仁路50巷33號

NO. 33, LN. 50, DAREN RD., TAOYUAN CITY, TAOYUAN COUNTY 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 Description) : THERMAL PAD (導熱矽膠片)

樣品型號(Style/Item No.) : H48-2F 收件日期(Sample Receiving Date) : 2013/03/08

測試期間(Testing Period) : 2013/03/08 TO 2013/03/15

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測試需求(Test Requested)

測試方法(Test Method)

測試結果(Test Results)

結論(Conclusion)

- (1) 依據客户要求,參考RoHS 2011/65/EU Annex II 指令進行鎬,鉛,汞,六價鉻,多溴聯苯,多溴聯苯醚測試. (As specified by client, with reference to RoHS Directive 2011/65/EU Annex II to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs contents in the submitted sample.)
 - (2) 依據客户指定,進行全氟辛酸(銨)、全氟辛烷磺酸、鹵素-氟、氯、溴、碘測試. (As specified by client, to test PFOA, PFOS, Halogen-Fluorine, Chlorine, Bromine, Iodine contents in the submitted sample.)
- : 請見下一頁 (Please refer to next pages).
- : 請見下一頁 (Please refer to next pages).
- : 根據客户所提供的樣品,其鎬,鉛,汞,六價鉻,多溴聯苯,多溴聯苯醚的測試結果符合 RoHS指令2002/95/EC的更新指令2011/65/EU之要求 (Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.)

Chenyu Kung Apperation Manager Signed for and on behalf of AN SGS TAIWAN LTD. Chemical Laboratory – Taipei

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測試結果(Test Results)

測試部位(PART NAME) No.1: 棕色/粉紅色矽膠片 (BROWN/PINK SILICONE RUBBER SHEET)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値 (MDL)	結果 (Result) No.1	法規 限値 (Limit)
鎬 / Cadmium (Cd)	mg/kg	参考IEC 62321: 2008 - Clause 8方 法,以感應耦合電漿原子發射光譜儀 檢測. / With reference to IEC 62321: 2008 - Clause 8 and performed by ICP-AES.	2	n.d.	100
鉛 / Lead (Pb)	mg/kg	参考IEC 62321: 2008 - Clause 8方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 - Clause 8 and performed by ICP-AES.	2	n.d.	1000
汞 / Mercury (Hg)	mg/kg	参考IEC 62321: 2008 - Clause 7方 法,以感應耦合電漿原子發射光譜儀 檢測. / With reference to IEC 62321: 2008 - Clause 7 and performed by ICP-AES.	2	n.d.	1000
六價鉻 / Hexavalent Chromium Cr(VI)	mg/kg	参考IEC 62321: 2008 - Annex C方 法,以UV-VIS檢測. / With reference to IEC 62321: 2008 - Annex C and performed by UV-VIS.	2	n.d.	1000
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	参考US EPA 3550C: 2007方法,以液相層析/質譜儀檢測./ With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.	-
全氟辛酸(銨)/ PFOA (CAS No.: 335-67- 1)	mg/kg	参考US EPA 3550C: 2007方法,以液相層析/質譜儀檢測./ With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.	-

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値 (MDL)	結果 (Result) No.1	法規 限値 (Limit)
多溴聯苯總和 / Sum of PBBs		参考IEC 62321: 2008 - Annex A方 法,以氣相層析/質譜儀檢測. / With reference to IEC 62321: 2008 - Annex A and performed by GC/MS.	-	n.d.	1000
一溴聯苯 / Monobromobiphenyl			5	n.d.	-
二溴聯苯 / Dibromobiphenyl			5	n.d.	-
三溴聯苯 / Tribromobiphenyl			5	n.d.	-
四溴聯苯 / Tetrabromobiphenyl			5	n.d.	-
五溴聯苯 / Pentabromobiphenyl	mg/kg		5	n.d.	-
六溴聯苯 / Hexabromobiphenyl			5	n.d.	-
七溴聯苯 / Heptabromobiphenyl			5	n.d.	-
八溴聯苯 / Octabromobiphenyl			5	n.d.	-
九溴聯苯 / Nonabromobiphenyl			5	n.d.	-
十溴聯苯 / Decabromobiphenyl			5	n.d.	-
多溴聯苯醚總和 / Sum of PBDEs			-	n.d.	1000
一溴聯苯醚 / Monobromodiphenyl ether			5	n.d.	-
二溴聯苯醚 / Dibromodiphenyl ether			5	n.d.	-
三溴聯苯醚 / Tribromodiphenyl ether			5	n.d.	-
四溴聯苯醚 / Tetrabromodiphenyl ether			5	n.d.	-
五溴聯苯醚 / Pentabromodiphenyl ether			5	n.d.	-
六溴聯苯醚 / Hexabromodiphenyl ether			5	n.d.	-
七溴聯苯醚 / Heptabromodiphenyl ether			5	n.d.	-
八溴聯苯醚 / Octabromodiphenyl ether			5	n.d.	-
九溴聯苯醚 / Nonabromodiphenyl ether			5	n.d.	-
十溴聯苯醚 / Decabromodiphenyl ether			5	n.d.	-
鹵素 / Halogen					
鹵素(氟)/ Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	參考BS EN 14582:2007, 以離子層析 儀分析. / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.	-
鹵素(氯)/ Halogen-Chlorine (C1) (CAS No.: 22537-15-1)			50	n.d.	-
鹵素(溴)/ Halogen-Bromine (Br) (CAS No.: 10097-32-2)			50	n.d.	-
鹵素(碘)/ Halogen-Iodine (I) (CAS No.: 14362-44-8)			50	n.d.	-

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備註(Note):

- 1. mg/kg = ppm; 0.1wt% = 1000ppm
- 2. n.d. = Not Detected (未檢出)
- 3. MDL = Method Detection Limit (方法偵測極限值)
- 4. "-" = Not Regulated (無規格值)

PFOS参考資訊(Reference Information): 持久性有機污染物 POPs - (EU) 757/2010

PFOS濃度在物質或製備中不得超過0.001%(10ppm),在半成品、成品或零部件中不得超過0.1%(1000ppm),在紡織品或塗層材料中不得超過1 μ g/m²。(Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1μ g/m².)

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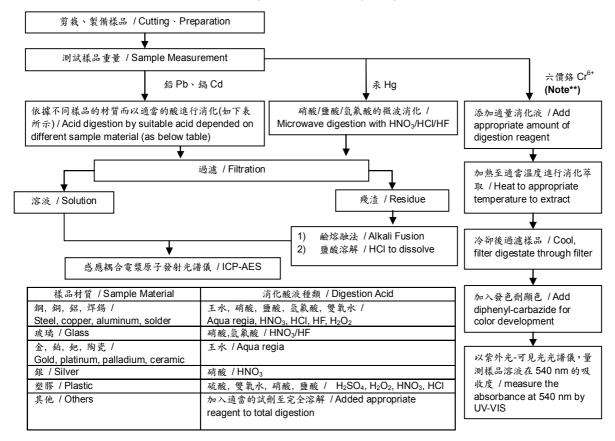
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- 1) 根據以下的流程圖之條件,樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)
- 2) 測試人員:楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 3) 测試負責人: 張啓興 / Name of the person in charge of measurement: Troy Chang



Note**:(1) 針對非金屬材料加入鹼性消化液 • 加熱至 90~95℃萃取. / For non-metallic material, add alkaline digestion reagent and heat to 90~95℃.

(2) 針對金屬材料加入純水,加熱至沸騰萃取. / For metallic material, add pure water and heat to boiling.

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

- 測試人員: 翁賜彬 / Name of the person who made measurement: Roman Wong

確認程序 / Confirmation process - · - →

Sample / 樣品

Sample pretreatment / 樣品前處理

Screen analysis / 初篩分析

Sample extraction 樣品萃取/
Soxhlet method 索式萃取法

Concentrate/Dilute Extracted solution 萃取液濃縮/稀釋

Filter / 萃取液過濾

Analysis by GC/MS / 氣相層析質譜儀分析

Issue Report 撰打報告



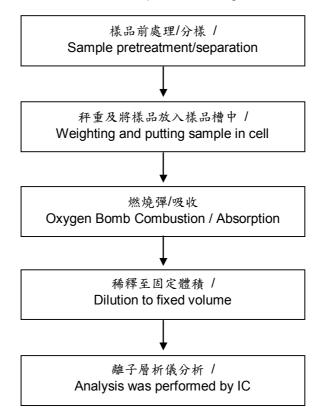
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鹵素分析流程圖 / Analytical flow chart of halogen content

- 測試人員: 陳恩臻 / Name of the person who made measurement: Rita Chen
- 測試負責人:張啓興 / Name of the person in charge of measurement: Troy Chang





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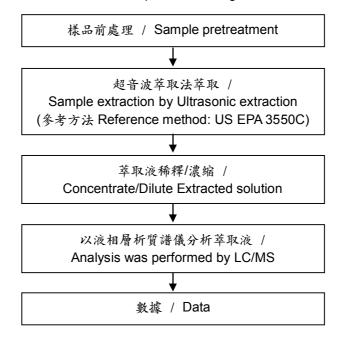
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全氟辛酸(銨)/全氟辛烷磺酸分析流程圖 / PFOA/PFOS analytical flow chart

- 測試人員: 翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人:張啓興 / Name of the person in charge of measurement: Troy Chang





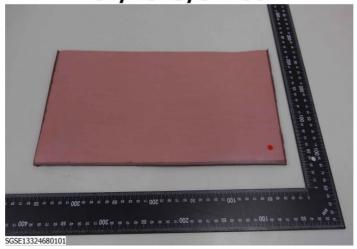
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* 照片中如有箭頭標示,則表示為實際檢測之樣品/部位. *
(The tested sample / part is marked by an arrow if it's shown on the photo.)

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** 報告結尾(End of Report) **