

試驗報告

號碼(No.): KA/2018/80642 日期(Date): 2018/08/16

頁數(Page): 1 of 14

Test Report

光頡科技股份有限公司高雄分公司 VIKING TECH CORPORATION KAOHSIUNG BRANCH 高雄市前鎮區新生路248-3號 NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

以下測試樣品係由客戶送樣,且由客戶聲稱並經客戶確認如下

(The following samples was/were submitted and identified by/on behalf of the client as):

樣品名稱(Sample Description) 樣品型號(Style/Item No.)

樣品顏色(Color)

收件日期(Sample Receiving Date)

測試期間(Testing Period) 送樣廠商(Sample Submitted By) : THICK FILM CHIP RESISTOR

CR/CN/RS/RT/AS/HVR/PWR/SWR/CS/HMR/CR. . A/AS. . A/CS. . A/CN. . A/TR CHIP

: WHITE/BLACK/SILVER CHIP RESISTOR

: 2018/08/09

: 2018/08/09 TO 2018/08/16

: 光頡科技股份有限公司高雄分公司

(VIKING TECH CORPORATION KAOHSIUNG BRANCH)

測試結果(Test Results)

: 請見下一頁 (Please refer to next pages).

報告簽署人/Ray Chan Signed for and on behalt of **SGS Taiwan Limited**

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測試結果(Test Results)

測試部位(PART NAME) NO.1 : 整體混測 (MIXED ALL PARTS)

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
鎬 / Cadmium (Cd)	mg/kg	参考IEC 62321-5: 2013,以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n. d.
鉛 / Lead (Pb)	mg/kg		2	573
汞 / Mercury(Hg)	mg/kg	參考IEC 62321-4: 2013,以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n. d.
六價鉻 / Hexavalent Chromium Cr(VI)	mg/kg	參考IEC 62321-7-2:2017,以UV-VIS檢測./ With reference to IEC 62321-7-2:2017 and performed by UV-VIS.	8	n. d.
多溴聯苯總和 / Sum of PBBs	mg/kg		_	n. d.
一溴聯苯 / Monobromobiphenyl	mg/kg	7	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	多考IEC 62321-6:2015,以氣相層析/質譜儀檢	5	n. d.
五溴聯苯 / Pentabromobiphenyl	mg/kg	測. / With reference to IEC 62321-6:2015	5	n. d.
六溴聯苯 / Hexabromobiphenyl	mg/kg	and performed by GC/MS.	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.

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NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) NO.1
多溴聯苯醚總和 / Sum of PBDEs	mg/kg		_	n. d.
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	參考IEC 62321-6:2015,以氣相層析/質譜儀檢	5	n. d.
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg	測. / With reference to IEC 62321-6:2015	5	n. d.
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg	and performed by GC/MS.	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.
鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl	mg/kg		50	n. d.
phthalate) (CAS No.: 84-69-5) 鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg	參考IEC 62321-8:2017,以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-8:2017. Analysis was performed by GC/MS.	50	n. d.
鄰苯二甲酸丁苯甲酯 / BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)	mg/kg		50	n. d.
鄰苯二甲酸二 (2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg		50	n. d.
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	mg/kg		50	n. d.
鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0, 68515-48-0)	mg/kg		50	n. d.
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0, 68515-49-1)	mg/kg		50	n. d.
鄰苯二甲酸二乙酯 / DEP (Di-ethyl phthalate) (CAS No.: 84-66-2)	mg/kg		50	n. d.

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NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) NO.1
銻 / Antimony (Sb)	mg/kg	參考US EPA 3052: 1996,以感應耦合電漿原子發射光譜儀檢測. / With reference to US EPA 3052: 1996. Analysis was performed by ICP-AES.	2	n. d.
砷 / Arsenic (As)	mg/kg		2	n. d.
鈹 / Beryllium (Be)	mg/kg		2	n. d.
六溴環十二烷及所有主要被辨別出的異構物 / Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α - HBCDD, β - HBCDD, γ - HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	参考IEC 62321: 2008,以氣相層析/質譜儀檢測. / With reference to IEC 62321: 2008. Analysis was performed by GC/MS.	5	n. d.
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS)	mg/kg	參考US EPA 3550C: 2007,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		10	n. d.
鹵素 / Halogen				
鹵素 (氟) / Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	参考BS EN 14582:2016,以離子層析儀檢測./ With reference to BS EN 14582:2016. Analysis was performed by IC.	50	n. d.
鹵素(氣)/ Halogen-Chlorine (C1) (CAS No.: 22537-15-1)	mg/kg		50	n. d.
鹵素(溴)/ Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg		50	n. d.
鹵素(碘)/ Halogen-Iodine(I) (CAS No.: 14362-44-8)	mg/kg		50	n. d.

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NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) NO.1
石綿 / Asbestos				
溫石綿(白石綿) / Chrysotile (CAS No.: 12001-29-5)	%	參考EPA 600/R-93/116 (1993) / 立體顯微鏡 (SM), 分散染色式偏光顯微鏡 (DS-PLM)及X光繞射光譜分析法 (XRD) / With reference to EPA 600/R-93/116 (1993). Analysis was performed by Stereo Microscope (SM), Dispersion Staining Polarized Light Microscope (DS-PLM) and X-ray Diffraction Spectrometer (XRD).	-	Negative
鐵石綿(褐石綿) / Amosite (CAS No.: 12172-73-5)	%		-	Negative
青石綿 / Crocidolite (CAS No.: 12001-28-4)	%		-	Negative
斜方角閃石綿 / Anthophyllite (CAS No.: 77536-67-5)	%		-	Negative
透閃石綿 / Tremolite (CAS No.: 77536-68-6)	%		-	Negative
陽起石綿 / Actinolite (CAS No.: 77536-66-4)	%		-	Negative

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)
- 5. 石綿定性分析試驗範圍: <0.1%-100%, 石綿鑑定的判定基準是以檢出含有石綿纖維為『Positive』,未檢出石綿纖維為 Negative of 7 Testing range of asbestos qualitative analysis is from less than 0.1% to 100%. The judgment criterion: asbestos fibers being found is shown as "Positive"; asbestos fibers not being found is shown as "Negative".
- 6. 樣品的測試是基於申請人要求混合測試,報告中的混合測試結果不代表其中個別單一材質的含量. (The samples was/were analyzed on behalf of the applicant as mixing sample in one testing. The above results was/were only given as the informality value.)

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1µg/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 1µg/m².)

全氟辛烷磺酸指全氟辛烷磺酸和它的衍生物包括全氟辛烷磺酸,全氟辛基磺醯胺,N-甲基全氟辛烷磺酰胺, N-乙基全氟辛烷磺酰胺, N-甲基全氟辛基磺酰基氨基乙醇, N-乙基全氟辛基磺酰基氨基乙醇。

(PFOS refer to Perfluoroctanesulfonic acid and its derivatives including Perfluoroctanesulfonic acid, Perfluoroctane sulfonamide, N-Methylperfluoroctane sulfonamide, N-Ethylperfluoroctane sulfonamide, N-Methylperfluoroctane sulfonamidoethanol and N-Ethylperfluoroctane sulfonamidoethanol.)

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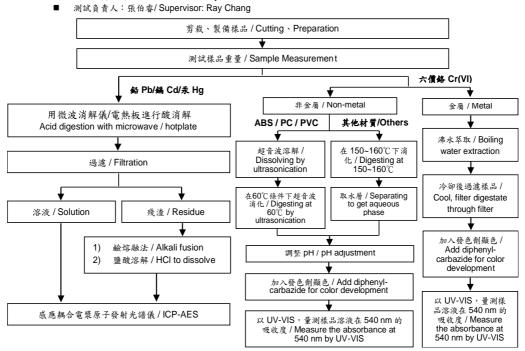
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重金屬流程圖 / Analytical flow chart of Heavy Metal

根據以下的流程圖之條件,樣品已完全溶解。(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)

測試人員:劉俊宏/Technician: Jony Liu



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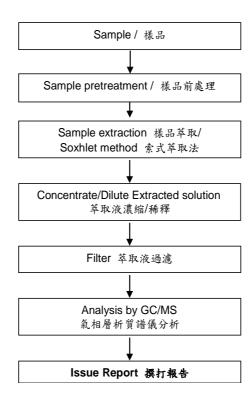
號碼(No.): KA/2018/80642 日期(Date): 2018/08/16

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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:陳威錚 / Technician: Dorothy Chen 測試負責人:張伯睿 / Supervisor: Ray Chang



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Test Report

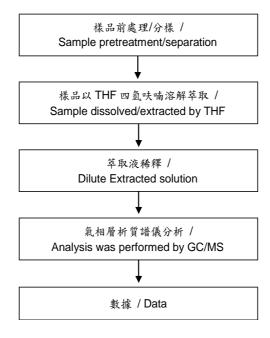
號碼(No.): KA/2018/80642 日期(Date): 2018/08/16

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

測試人員:陳威錚 / Technician: Dorothy Chen 測試負責人:張伯睿 / Supervisor: Ray Chang

【測試方法/Test method: IEC 62321-8】



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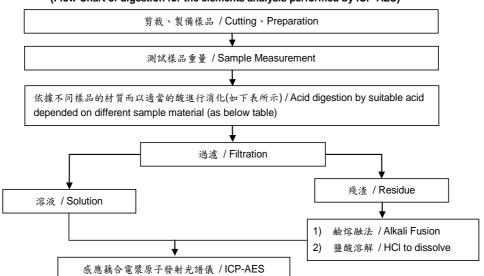
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> 根據以下的流程圖之條件,樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.

測試人員:劉俊宏/ Technician: Jony Liu 測試負責人:張伯睿/ Supervisor: Ray Chang

元素以 ICP-AES 分析的消化流程圖 (Flow Chart of digestion for the elements analysis performed by ICP-AES)



鋼,銅,鋁,焊錫 / Steel, copper, aluminum, solder	王水,硝酸,鹽酸,氫氟酸,雙氧水 / Aqua regia, HNO ₃ , HCI, HF, H ₂ O ₂
玻璃 / Glass	硝酸,氫氟酸 / HNO ₃ /HF
金,鉑,鈀,陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO ₃
塑膠 / Plastic	硫酸,雙氧水,硝酸,鹽酸 / H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCI
其他 / Others	加入任何酸至完全溶解 / Any acid to total digestion

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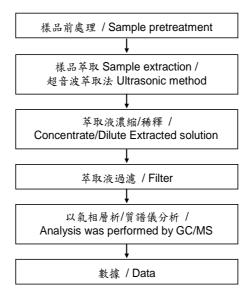
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六溴環十二烷分析流程圖 / HBCDD analytical flow chart

測試人員: 陳威錚 / Technician: Dorothy Chen 測試負責人:張伯睿 / Supervisor: Ray Chang



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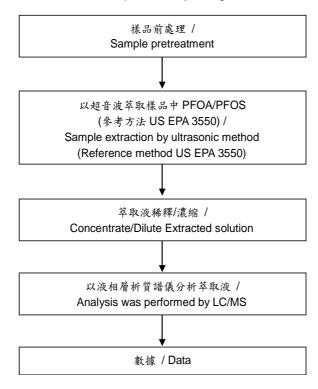
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全氟辛酸(銨)/ 全氟辛烷磺酸分析流程圖 / Analytical flow chart of PFOA/PFOS content

測試人員: 黃璟瓔 / Technician: Ginny Huang 測試負責人:張伯睿 / Supervisor: Ray Chang



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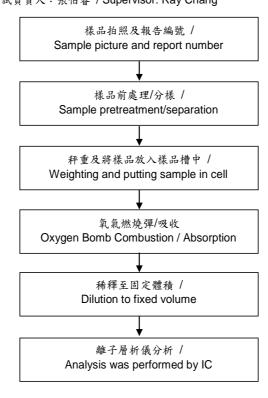
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鹵素分析流程圖 / Analytical flow chart of halogen content

測試人員:洪秀真/Technician: Jean Hung 測試負責人:張伯睿 / Supervisor: Ray Chang



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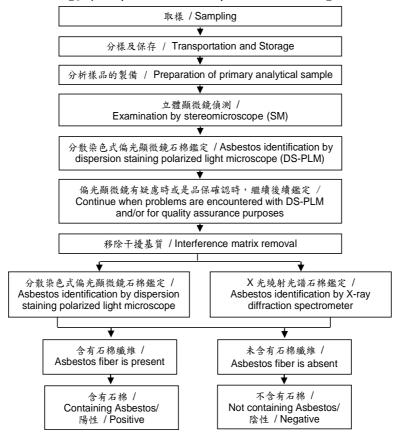
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石棉鑑定分析流程圖 / Analysis flow chart for determination of Asbestos

- 測試人員:高鍵忠 / Name of the person who made measurement: Victor Kao
- 測試負責人:魏明芬 / Name of the person in charge of measurement: Wendy Wei

【参考方法(Reference method): EPA 600/R-93/116】



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