

Test Report

號碼(No.): EKR23302194 日期(Date): 07-Ap

日期(Date): 07-Apr-2023 頁數(Page): 1 of 17

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)

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by the applicant as):

送樣廠商(Sample Submitted Bv) : 光頡科技股份有限公司高雄分公司 (VIKING TECH CORPORATION KAOHSIUNG

BRANCH)

樣品名稱(Sample Name) : LOW OHM THICK FILM CHIP RESISTOR

樣品型號(Style/Item No.) : RS/CS/CS..A/CSN/CSW

收件日(Sample Receiving Date) : 25-Mar-2023

測試期間(Testing Period) : 25-Mar-2023 to 07-Apr-2023

測試需求(Test Requested) : 依據客戶要求進行測試,測試項目請參閱測試結果表格。 (Testing item(s) is/are

specified by client. Please refer to result table for testing item(s).)

測試結果(Test Results) : 請參閱下一頁 (Please refer to following pages.)

報告簽署人/張伯睿 博士/部 Was Bay Chang, Ph.D./ Department Manager Signed for and on behality Alway SGS TAIWAN LTD. 化學實驗室-高雄/Chemical Laboratory-Kaohsiung



DINI CODE: 1E3 AOARA



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測試部位敘述 (Test Part Description)

No.1 : 整體混測 (MIXED ALL PARTS)

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)) | 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.) | | | |
| 鉛 (Pb) (Lead (Pb)) | 參考IEC 62321-5: 2013 · 以感應耦合電漿發射光 | mg/kg | 2 | 2.50 |
| | 譜儀分析。(With reference to IEC 62321-5: | | | |
| | 2013, analysis was performed by ICP-OES.) | | | |
| 汞 (Hg) (Mercury (Hg)) | 參考IEC 62321-4: 2013+ AMD1: 2017,以感應耦 | mg/kg | 2 | n.d. |
| | 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 62321-7-2: 2017·以紫外光-可見光分光 | mg/kg | 8 | n.d. |
| Cr(VI)) | 光度計分析。(With reference to IEC 62321-7-2: | | | |
| | 2017, 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, | 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 | - | n.d. |
| 鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl | | mg/kg | 50 | n.d. |
| phthalate (BBP)) | | | | |
| 鄰苯二甲酸二丁酯 (DBP) (Dibutyl | | mg/kg | 50 | n.d. |
| phthalate (DBP)) | | | | |
| 鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl | 1 | mg/kg | 50 | n.d. |
| phthalate (DIBP)) | | | | |
| 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)) | | | | |
| 鄰苯二甲酸二異壬酯 (DINP) (Diisononyl | 析。(With reference to IEC 62321-8: 2017, | mg/kg | 50 | n.d. |
| phthalate (DINP)) (CAS No.: 28553-12- | analysis was performed by GC/MS.) | | | |
| 0, 68515-48-0) | | | | |
| 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) | | | | |



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| 測試項目 (Test Items) | 測試方法 (Method) | 單位 (Unit) | MDL | 結果 (Result) No.1 |
|--|---|--------------|-----|------------------------|
| 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) | | mg/kg | 50 | n.d. |
| 溴 (Br) (Bromine (Br)) (CAS No.: 10097- 32-2) | | mg/kg | 50 | n.d. |
| 碘 (I) (Iodine (I)) (CAS No.: 14362-44-8) | | mg/kg | 50 | n.d. |
| 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 - HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α - HBCDD, β - HBCDD, γ - 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. |
| 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. |
| 砷 (As) (Arsenic (As)) (CAS No.: 7440- 38-2) | 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. |



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| 測試項目 (Test Items) | 測試方法 (Method) | 單位 (Unit) | MDL | 結果 (Result) No.1 |
|--|--|--------------|------|------------------------|
| 石綿 (Asbestos) | | | | |
| 陽起石綿 (Actinolite) (CAS No.: 77536- 66-4) | 參考EPA 600/R-93/116: 1993 · 以立體顯微鏡 (SM)與分散染色式偏光顯微鏡(DS-PLM)及X光繞射光譜分析法(XRD)分析。(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 |
| 褐石綿/鐵石綿 (Amosite) (CAS No.: 12172-73-5) | | - | - | Negative |
| 斜方角閃石綿 (Anthophyllite) (CAS No.: 77536-67-5) | | - | - | Negative |
| 白石綿/溫石綿 (Chrysotile) (CAS No.: 12001-29-5) | | - | - | Negative |
| 青石綿 (Crocidolite) (CAS No.: 12001- 28-4) | | - | - | Negative |
| 透閃石綿 (Tremolite) (CAS No.: 77536-68-6) | | - | - | Negative |
| 中鏈氯化石蠟(C14-C17) (MCCP) (Medium Chain Chlorinated Paraffins(C14-C17) (MCCP)) (CAS No.: 85535-85-9) | 參考ISO 18219-2: 2021 · 以氣相層析儀/質譜儀分析。(With reference to ISO 18219-2: 2021, analysis was performed by GC/MS.) | mg/kg | 50 | n.d. |
| 四溴雙酚 A (TBBP-A) (Tetrabromobisphenol A (TBBP-A)) (CAS No.: 79-94-7) | 參考RSTS-E&E-121 · 以液相層析儀/質譜儀分析。 (With reference to RSTS-E&E-121, analysis was performed by LC/MS.) | mg/kg | 10 | 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. |



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備註(Note):

- 1. mg/kg = ppm; 0.1wt% = 0.1% = 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. 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』。(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. 全氟辛烷磺酸及其鹽類包含等物質 (PFOS and its salts including): CAS No.: 1763-23-1, 2795-39-3, 29457-72-5, 29081-56-9, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7, 91036-71-4, 4021-47-0 and others.
- 7. 全氟辛酸及其鹽類包含等物質 (PFOA and its salts including): CAS No.: 335-67-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0, 3825-26-1 and others.
- 8. 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 sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value.



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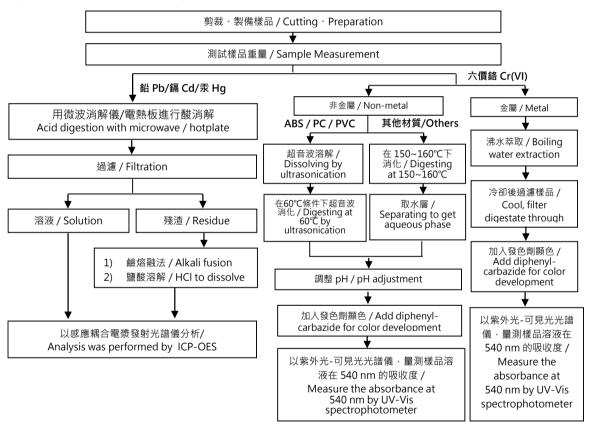
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重金屬流程圖 / Analytical flow chart of Heavy Metal

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. (Cr^{6+} test method excluded)





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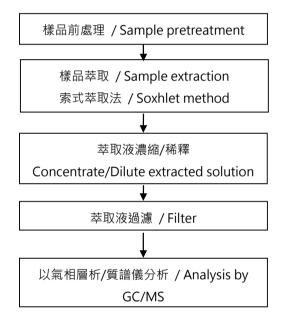
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多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART





Test Report

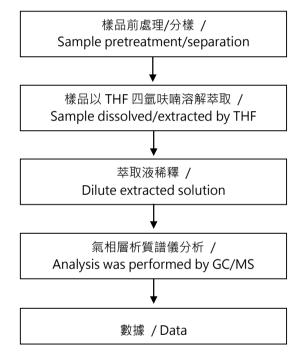
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可塑劑分析流程圖 / Analytical flow chart of phthalate content

【測試方法/Test method: IEC 62321-8】



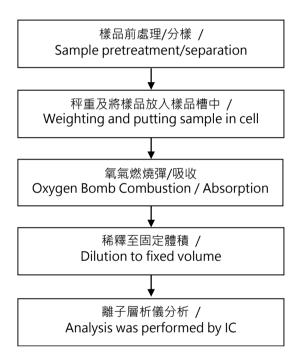


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鹵素分析流程圖 / Analytical flow chart of Halogen





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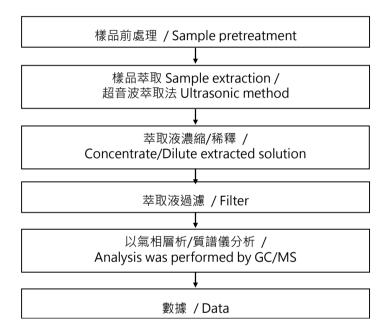
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD





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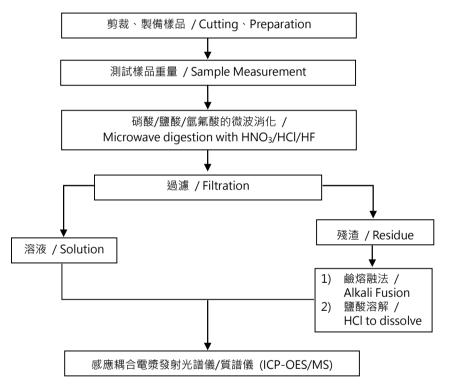
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元素(含重金屬)分析流程圖 / Analytical flow chart of Elements (Heavy metal included)

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.

【参考方法/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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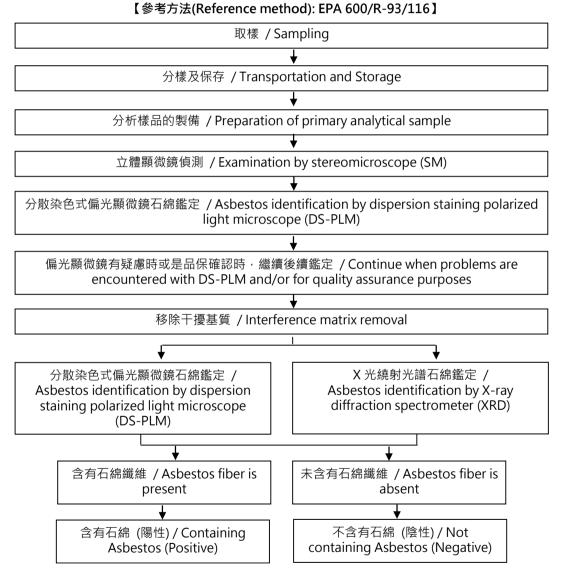
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石綿鑑定分析流程圖 / Analysis flow chart for determination of Asbestos





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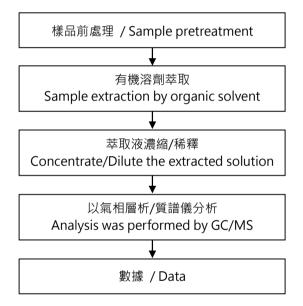
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分析流程圖 / Analytical flow chart

【適用於:多氯聯苯、多氯奈、多氯三聯苯、滅蟻靈、氯化石蠟、DBBT】

*Apply to: PCBs, PCNs, PCTs, Mirex, Chlorinated Paraffins, DBBT





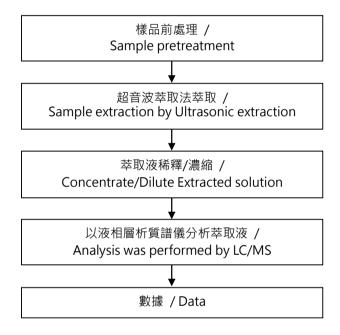
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四溴雙酚-A分析流程圖 / TBBP-A analytical flow chart



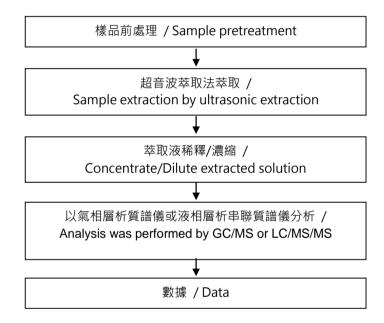


Test Report

號碼(No.): EKR23302194 日期(Date): 07-Apr-2023

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)

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.)



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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) **