

測試報告 Test Report

號碼(No.) : CE/2019/B0930 日期(Date) : 2019/11/21

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億光電子工業股份有限公司
EVERLIGHT ELECTRONICS CO., LTD.
新北市樹林區中華路6-8號
NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, 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) :

| BASIC INFORMATION | |
|--------------------------------------|---|
| Type of Product | HIGH POWER LED_ELYU |
| Supplier Company Name | EVERLIGHT |
| Address | NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN |
| Tel / Fax / Email | TEL: 886-2685-6688 |
| | FAX: 886-2685-6699 |
| | E-MAIL: lindawang@everlight.com |
| Contact Person | LI LING WANG |
| EVERLIGHT REPORT NO | EVERLIGHT-ELYU SERIES Sampling Product : ELYU03-5070J6J8294310-N0-SGS-21/11/2019 |
| PRODUCT INFORMATION | |
| Product/component Sample description | Automotive exterior lighting |
| Quantity (numbers or weight) | 0.0361 g |
| EVERLIGHT P/N | ELYU SERIES Sampling Product : ELYU03-5070J6J8294310-N0 |
| Product Lot No | Y190824A1101VB5B |
| Country of Origin | TAIWAN |
| TEST INFORMATION | |
| Sample preparation | CUTTING |
| Test Method | RoHS: IEC 62321, Halogen: BS EN 14582 |
| MDL | Cd, Pb, Hg: 2 mg/kg, PBBs/PBDEs: 5 mg/kg, Halogen: 50 mg/kg |
| Name of Analyzer | Cd, Pb, Hg, Cr(VI): Rita Chen, PBBs/PBDEs: Yaling Tu, Halogen: Rita Chen |

送樣廠商(Sample Submitted By) : 億光電子工業股份有限公司 (EVERLIGHT ELECTRONICS CO., LTD.)
 收件日期(Sample Receiving) : 2019/11/06
 測試期間(Testing Period) : 2019/11/06 to 2019/11/21

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


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



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結論(Conclusion)

- (1) 根據客戶所提供的樣品，其鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚，DBP, BBP, DEHP, DIBP的測試結果符合RoHS 2011/65/EU Annex II 暨其修訂指令(EU) 2015/863之限值要求。(Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.)
- (2) 根據客戶所提供的樣品，18項多環芳香烴測試結果符合德國產品安全委員會(AfPS) GS PAHs第3類「列於德國產品安全法之其他產品」之限值要求。(Based upon the performed tests on the submitted sample(s), the test results of PAHs (18 items) comply with the limits of PAHs requirement (Category 3)「Other products under ProdSG」as set by German Committee on Product Safety (AfPS) GS PAHs.)

測試結果(Test Results)

- 測試部位(PART NAME)No. 1 : 透明膠體 (TRANSPARENT GLUE)
測試部位(PART NAME)No. 2 : 銅白色片狀 (COPPER-WHITE COLORED SHEET)

| 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) | | 限值 (Limit) |
|---|--------------|--|----------------------|-------------|-------|---------------|
| | | | | No. 1 | No. 2 | |
| 鎘 / Cadmium (Cd) | mg/kg | 參考 IEC 62321-5 (2013)，以感應耦合電漿發射光譜儀檢測。 / With reference to IEC 62321-5 (2013) and performed by ICP-OES. | 2 | n. d. | n. d. | 100 |
| 鉛 / Lead (Pb) | mg/kg | | 2 | n. d. | n. d. | 1000 |
| 汞 / Mercury (Hg) | mg/kg | 參考 IEC 62321-4:2013+ AMD1:2017，以感應耦合電漿發射光譜儀檢測。 / With reference to IEC 62321-4:2013+ AMD1:2017 and performed by ICP-OES. | 2 | n. d. | n. d. | 1000 |
| 六價鉻 / Hexavalent Chromium Cr(VI) (◆) | mg/kg | 參考 IEC 62321-7-2 (2017)，以 UV-VIS 檢測；參考 IEC 62321-5 (2013)，以 ICP-OES 檢測。 / With reference to IEC 62321-7-2 (2017) and performed by UV-VIS. ; With reference to IEC 62321-5 (2013) and performed by ICP-OES. | 8 | n. d. | n. d. | 1000 |

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|----------------------------------|--------------|--|----------------------|-------------|-------|---------------|
| | | | | No. 1 | No. 2 | |
| 多溴聯苯總和 / Sum of PBBs | mg/kg | 參考 IEC 62321-6 (2015), 以氣相層析/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS. | - | n. d. | n. d. | 1000 |
| 一溴聯苯 / Monobromobiphenyl | mg/kg | | 5 | n. d. | n. d. | - |
| 二溴聯苯 / Dibromobiphenyl | mg/kg | | 5 | n. d. | n. d. | - |
| 三溴聯苯 / Tribromobiphenyl | mg/kg | | 5 | n. d. | n. d. | - |
| 四溴聯苯 / Tetrabromobiphenyl | mg/kg | | 5 | n. d. | n. d. | - |
| 五溴聯苯 / Pentabromobiphenyl | mg/kg | | 5 | n. d. | n. d. | - |
| 六溴聯苯 / Hexabromobiphenyl | mg/kg | | 5 | n. d. | n. d. | - |
| 七溴聯苯 / Heptabromobiphenyl | mg/kg | | 5 | n. d. | n. d. | - |
| 八溴聯苯 / Octabromobiphenyl | mg/kg | | 5 | n. d. | n. d. | - |
| 九溴聯苯 / Nonabromobiphenyl | mg/kg | | 5 | n. d. | n. d. | - |
| 十溴聯苯 / Decabromobiphenyl | mg/kg | | 5 | n. d. | n. d. | - |
| 多溴聯苯醚總和 / Sum of PBDEs | mg/kg | | - | n. d. | n. d. | 1000 |
| 一溴聯苯醚 / Monobromodiphenyl ether | mg/kg | | 5 | n. d. | n. d. | - |
| 二溴聯苯醚 / Dibromodiphenyl ether | mg/kg | | 5 | n. d. | n. d. | - |
| 三溴聯苯醚 / Tribromodiphenyl ether | mg/kg | | 5 | n. d. | n. d. | - |
| 四溴聯苯醚 / Tetrabromodiphenyl ether | mg/kg | | 5 | n. d. | n. d. | - |
| 五溴聯苯醚 / Pentabromodiphenyl ether | mg/kg | | 5 | n. d. | n. d. | - |
| 六溴聯苯醚 / Hexabromodiphenyl ether | mg/kg | | 5 | n. d. | n. d. | - |
| 七溴聯苯醚 / Heptabromodiphenyl ether | mg/kg | | 5 | n. d. | n. d. | - |
| 八溴聯苯醚 / Octabromodiphenyl ether | mg/kg | | 5 | n. d. | n. d. | - |
| 九溴聯苯醚 / Nonabromodiphenyl ether | mg/kg | 5 | n. d. | n. d. | - | |
| 十溴聯苯醚 / Decabromodiphenyl ether | mg/kg | 5 | n. d. | n. d. | - | |

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 新北市樹林區中華路6-8號
 NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, 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) | | 限值 (Limit) |
|---|--------------|---|----------------------|-------------|-------|---------------|
| | | | | No. 1 | No. 2 | |
| 鄰苯二甲酸丁苯甲酯 / BBP (Butyl Benzyl phthalate) (CAS No. : 85-68-7) | mg/kg | 參考IEC 62321-8 (2017), 以氣相層析/質譜儀檢測. / With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS. | 50 | n. d. | n. d. | 1000 |
| 鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No. : 84-74-2) | mg/kg | | 50 | n. d. | n. d. | 1000 |
| 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. | n. d. | 1000 |
| 鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl phthalate) (CAS No. : 84-69-5) | mg/kg | | 50 | n. d. | n. d. | 1000 |
| 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. | 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. | 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. | n. d. | - |
| 鄰苯二甲酸二戊酯 / DNPP (Di-n-pentyl phthalate) (CAS No. : 131-18-0) | mg/kg | | 50 | n. d. | n. d. | - |
| 鄰苯二甲酸二正己酯 / DNHP (Di-n-hexyl phthalate) (CAS No. : 84-75-3) | mg/kg | | 50 | n. d. | n. d. | - |
| 鄰苯二甲酸二(2-甲氧基乙基)酯 / DMEP (Bis (2-methoxyethyl) phthalate) (CAS No. : 117-82-8) | mg/kg | | 50 | n. d. | 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 | 參考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. | n. d. | - |

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|--|--------------|---|----------------------|-------------|-------|---------------|
| | | | | No. 1 | No. 2 | |
| 多環芳香煙 / Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | |
| 芘 / Acenaphthene (CAS No. : 83-32-9) | mg/kg | 參考AfPS GS 2014:01 PAK, 以氣相層析/質譜儀檢測。 / With reference to AfPS GS 2014:01 PAK. Analysis was performed by GC/MS. | 0.2 | n. d. | n. d. | - |
| 芘烯 / Acenaphthylene (CAS No. : 208-96-8) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 蒽 / Anthracene (CAS No. : 120-12-7) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 苯駢蒽 / Benzo[a]anthracene (CAS No. : 56-55-3) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 苯駢(a)芘 / Benzo[a]pyrene (CAS No. : 50-32-8) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 苯(b)苯駢芘 / Benzo[b]fluoranthene (CAS No. : 205-99-2) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 苯駢芘 / Benzo[g, h, i]perylene (CAS No. : 191-24-2) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 苯駢(k)螢蒽 / Benzo[k]fluoranthene (CAS No. : 207-08-9) | mg/kg | | 0.2 | n. d. | n. d. | - |
| Chrysene (CAS No. : 218-01-9) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 二苯駢蒽 / Dibenzo[a, h]anthracene (CAS No. : 53-70-3) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 苯駢芘 / Fluoranthene (CAS No. : 206-44-0) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 芘 / Fluorene (CAS No. : 86-73-7) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 節酮芘 / Indeno[1, 2, 3-c, d] pyrene (CAS No. : 193-39-5) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 萘 / Naphthalene (CAS No. : 91-20-3) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 菲 / Phenanthrene (CAS No. : 85-01-8) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 芘 / Pyrene (CAS No. : 129-00-0) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 苯(j)苯駢芘 / Benzo[j]fluoranthene (CAS No. : 205-82-3) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 苯駢(e)芘 / Benzo[e]pyrene (CAS No. : 192-97-2) | mg/kg | | 0.2 | n. d. | n. d. | - |
| 多環芳香煙18項總和 / Sum of 18 PAHs | mg/kg | - | n. d. | n. d. | △ | |

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|--|--------------|--|----------------------|-------------|-------|---------------|
| | | | | No. 1 | No. 2 | |
| 鹵素 / Halogen | | | | | | |
| 鹵素 (氟) / Halogen-Fluorine (F) (CAS No. : 14762-94-8) | mg/kg | 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. | 50 | n. d. | n. d. | - |
| 鹵素 (氯) / Halogen-Chlorine (Cl) (CAS No. : 22537-15-1) | mg/kg | | 50 | n. d. | n. d. | - |
| 鹵素 (溴) / Halogen-Bromine (Br) (CAS No. : 10097-32-2) | mg/kg | | 50 | n. d. | n. d. | - |
| 鹵素 (碘) / Halogen-Iodine (I) (CAS No. : 14362-44-8) | mg/kg | | 50 | n. d. | n. d. | - |
| 全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide) | 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. | n. d. | - |
| 全氟辛酸 / PFOA (CAS No. : 335-67-1) | mg/kg | | 10 | n. d. | n. d. | - |
| 鈹 / Beryllium (Be) | mg/kg | 參考US EPA 3052 (1996), 以感應耦合電漿發射光譜儀檢測. / With reference to US EPA 3052 (1996). Analysis was performed by ICP-OES. | 2 | n. d. | 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)
5. (◆) :

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.

PFOS參考資訊(Reference Information) : 持久性有機污染物 POPs - (EU) 2019/1021

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 $1\mu\text{g}/\text{m}^2$ 。

(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 $1\mu\text{g}/\text{m}^2$.)

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億光電子工業股份有限公司
EVERLIGHT ELECTRONICS CO., LTD.
新北市樹林區中華路6-8號
NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN

△ 德國產品安全委員會(AfPS) GS PAHs 要求 /
AfPS (German commission for Product Safety): GS PAHs requirements

| 項目 (Parameter) | 第1類(Category 1) | 第2類(Category 2) | | 第3類(Category 3) | |
|------------------------------|---|--|--|--|--|
| | 意圖放入嘴內的材料或玩具會與皮膚有所接觸(超過30秒). (Material indented to be put in the mouth or toys with intended skin contact (longer than 30 s).) | 不屬於第1類的材料並可預見與皮膚接觸逾30秒(長期或經常與皮膚接觸). (Materials not falling under category 1 with foreseeable contact to skin for longer than 30 seconds (long-term skin or frequent contact).) | 列於2009/48/EC之玩具 (Toy under 2009/48/EC) | 列於德國產品安全法之其他產品 (Other products under ProdSG) | 列於2009/48/EC之玩具 (Toy under 2009/48/EC) |
| Naphthalene | < 1 | < 2 | | < 10 | |
| Acenaphthylene | < 1 Sum | < 5 Sum | < 10 Sum | < 20 Sum | < 50 Sum |
| Acenaphthene | | | | | |
| Fluorene | | | | | |
| Phenanthrene | | | | | |
| Anthracene | | | | | |
| Fluoranthene | | | | | |
| Pyrene | | | | | |
| Benzo[a]anthracene | | | | | |
| Chrysene | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[b]fluoranthene | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[j]fluoranthene | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[k]fluoranthene | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[a]pyrene | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[e]pyrene | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Indeno[1,2,3-c,d] pyrene | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Dibenzo[a,h]anthracene | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[g,h,i]perylene | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| 18項PAH總濃度 (Sum of 18 PAH) | < 1 | < 5 | < 10 | < 20 | < 50 |

單位(Unit) : mg/kg

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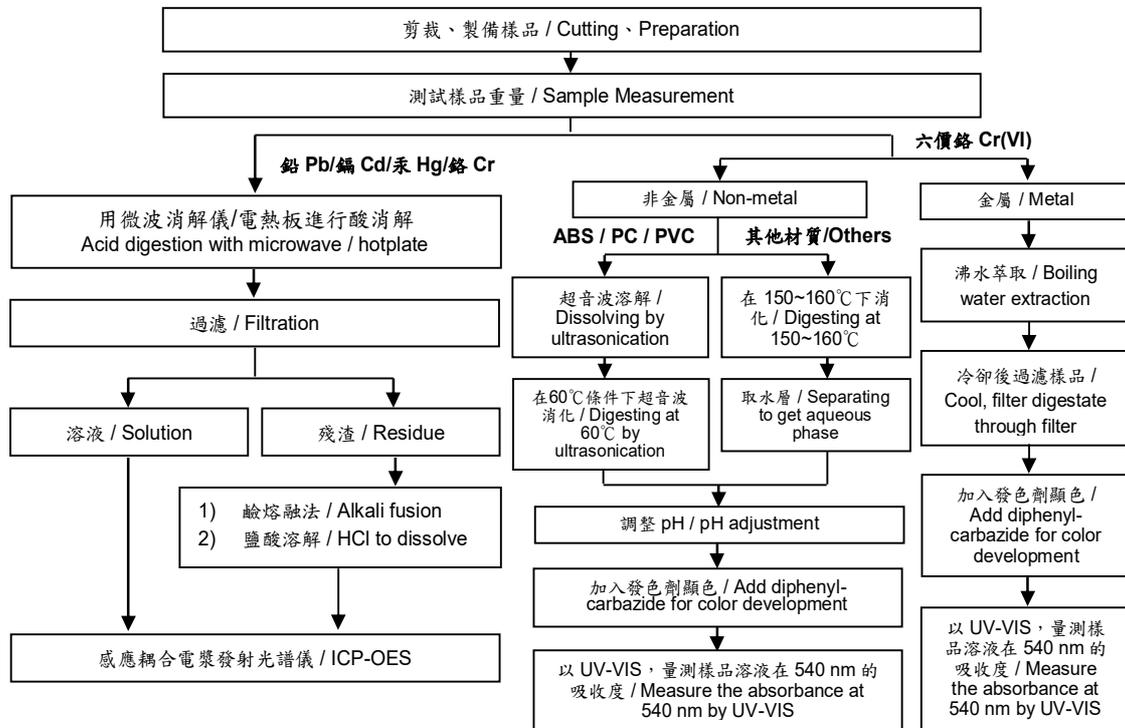
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重金屬流程圖 / Analytical flow chart of Heavy Metal

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：陳恩臻 / Technician : Rita Chen
- 測試負責人：張啟興 / Supervisor: Troy Chang



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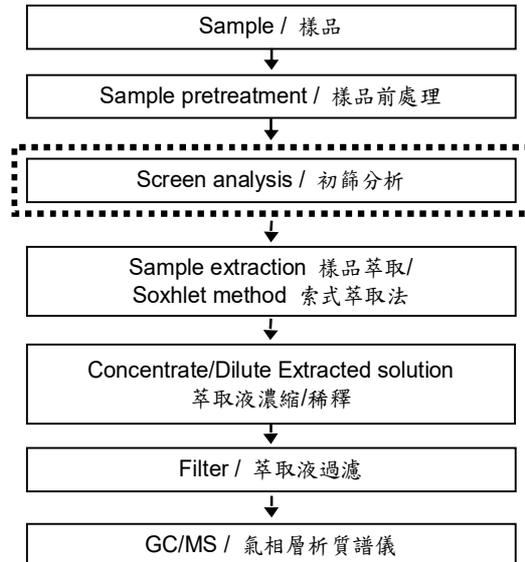
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多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBB/PBDE

- 測試人員：涂雅苓 / Technician: Yaling Tu
- 測試負責人：張啟興 / Supervisor: Troy Chang

初次測試程序 / First testing process —————>
 選擇性篩檢程序 / Optional screen process>
 確認程序 / Confirmation process - - ->



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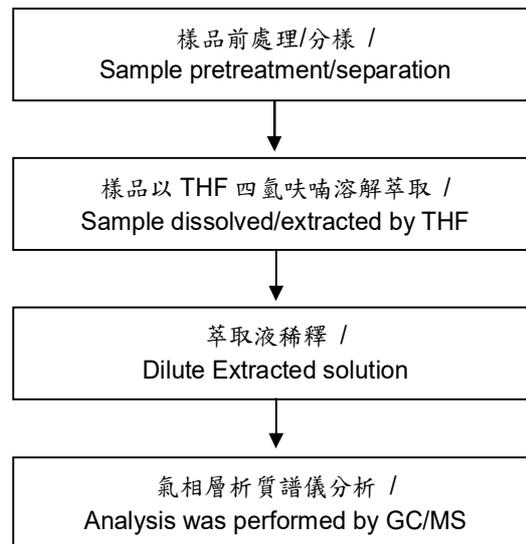
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可塑劑分析流程圖 / Analytical flow chart - Phthalate

- 測試人員：涂雅苓 / Technician: Yaling Tu
- 測試負責人：張啟興 / Supervisor : Troy Chang

【測試方法/Test method: IEC 62321-8】



測試報告 Test Report

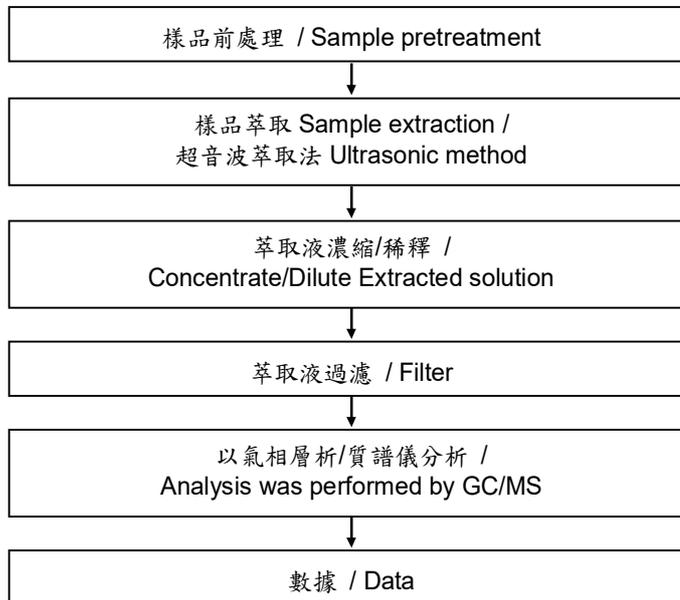
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD

- 測試人員：涂雅苓 / Technician: Yaling Tu
- 測試負責人：張啟興 / Supervisor: Troy Chang



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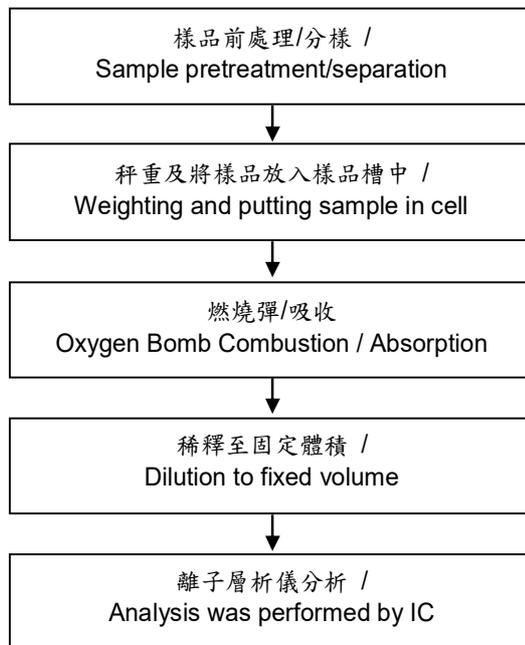
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鹵素分析流程圖 / Analytical flow chart - Halogen

- 測試人員：陳恩臻 / Technician: Rita Chen
- 測試負責人：張啟興 / Supervisor: Troy Chang



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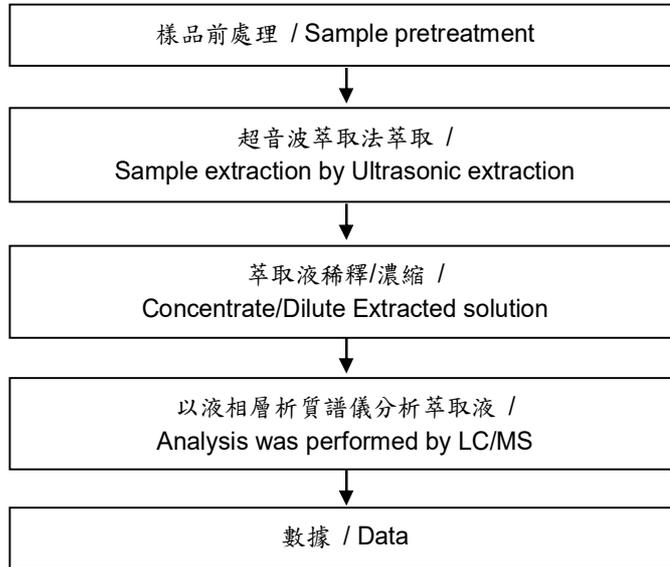
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全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS

- 測試人員：涂雅苓 / Technician: Yaling Tu
- 測試負責人：張啟興 / Supervisor: Troy Chang



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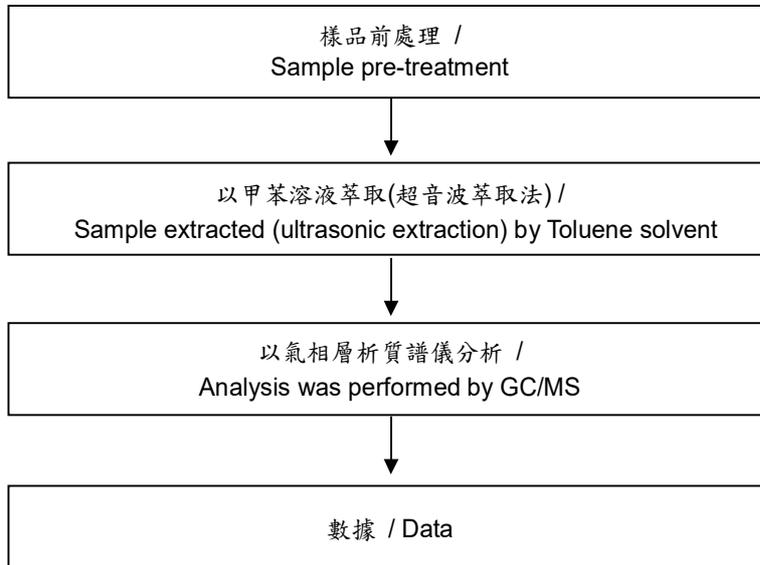
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多環芳香烴分析流程圖 / Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)

- 測試人員：涂雅苓 / Technician: Yaling Tu
- 測試負責人：張啟興 / Supervisor: Troy Chang



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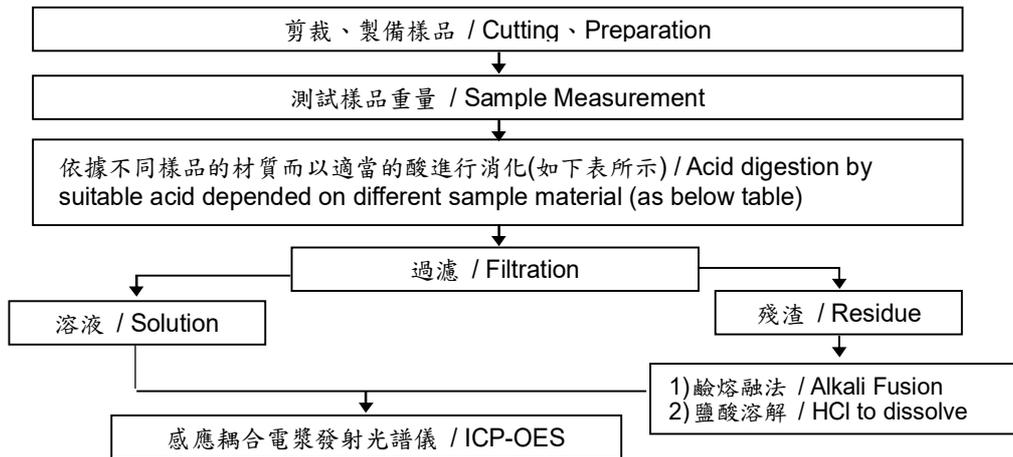
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根據以下的流程圖之條件，樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.

- 測試人員：陳恩臻 / Technician: Rita Chen
- 測試負責人：張啟興 / Supervisor: Troy Chang

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)



| | |
|---|--|
| 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 , HCl, 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 , HCl |
| 其他 / Others | 加入適當的試劑至完全溶解 / Added appropriate reagent to total digestion |

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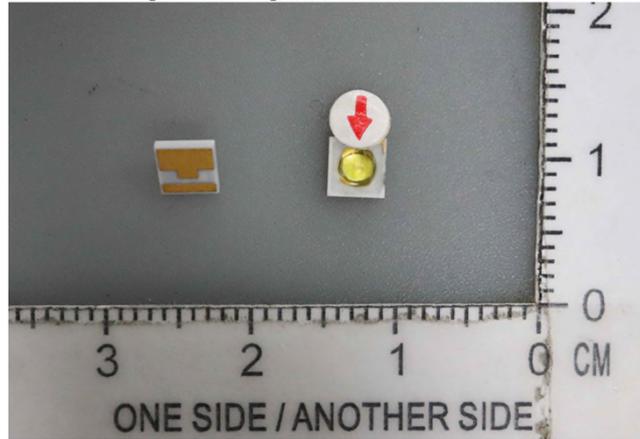
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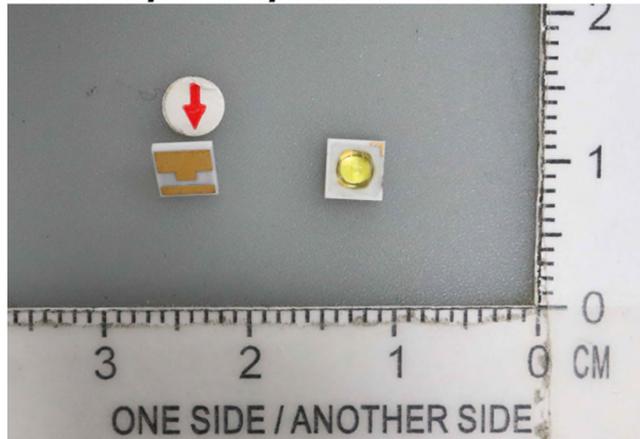
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* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。*
(The tested sample / part is marked by an arrow if it's shown on the photo.)

CE/2019/B0930 NO.1



CE/2019/B0930 NO.2



** 報告結尾 (End of Report) **