測試報告
Test Report

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):

送樣廠商 (Sample Submitted By) : 台灣化學纖維股份有限公司 (FORMOSA CHEMICALS & FIBRE CORPORATION)

樣品名稱 (Sample Description) : PC/ABS ALLOYS (聚碳酸酯/丙烯腈-丁二烯-苯乙烯 合膠)

樣品型號 (Style/Item No) : TAIRILOY AC2108

收件日期 (Sample Receiving Date) : 2019/06/20

測試期間 (Testing Period) : 2019/06/20 to 2019/06/26

測試需求 (Test Requested) : 依據客戶指標，參考RoHS 2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鉛、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).)

測試方法 (Test Method) : 請參閱下一頁 (Please refer to following pages).

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

結論 (Conclusion) : 根據客戶所提出的樣品，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.)
### Test Results

**Test部位 (PART NAME) No.1**  米色塑膠粒 (BEIGE PLASTIC PELLETS)

<table>
<thead>
<tr>
<th>测试项目 (Test Items)</th>
<th>單位 (Unit)</th>
<th>测试方法 (Method)</th>
<th>方法侦测极限值 (MDL)</th>
<th>結果 (Result) No.1</th>
<th>限值 (Limit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>砷 / Cadmium (Cd)</td>
<td>mg/kg</td>
<td>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-MS.</td>
<td>2</td>
<td>n.d.</td>
<td>100</td>
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<tr>
<td>汞 / Lead (Pb)</td>
<td>mg/kg</td>
<td>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-MS.</td>
<td>2</td>
<td>n.d.</td>
<td>1000</td>
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<tr>
<td>水銀 / Mercury (Hg)</td>
<td>mg/kg</td>
<td>参考 IEC 62321-4-2013+ AMD1:2017, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-4:2013+ AMD1:2017 and performed by ICP-MS.</td>
<td>2</td>
<td>n.d.</td>
<td>1000</td>
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<tr>
<td>六價鉻 / Hexavalent Chromium Cr(VI)</td>
<td>mg/kg</td>
<td>参考 IEC 62321-7-2 (2017), 以UV-VIS检测. / With reference to IEC 62321-7-2 (2017) and performed by UV-VIS.</td>
<td>8</td>
<td>n.d.</td>
<td>1000</td>
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<tr>
<td>多溴聯苯緒和 / Sum of PBBs</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>-</td>
<td>n.d.</td>
<td>1000</td>
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<tr>
<td>一溴聯苯 / Monobromobiphenyl</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>二溴聯苯 / Dibromobiphenyl</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
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<tr>
<td>三溴聯苯 / Tribromobiphenyl</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>四溴聯苯 / Tetrabromobiphenyl</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>五溴聯苯 / Pentabromobiphenyl</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
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<tr>
<td>六溴聯苯 / Hexabromobiphenyl</td>
<td>mg/kg</td>
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<td>n.d.</td>
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<td>七溴聯苯 / Heptabromobiphenyl</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
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<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>八溴聯苯 / Octabromobiphenyl</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
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<tr>
<td>九溴聯苯 / Nonabromobiphenyl</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
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<td>n.d.</td>
<td>-</td>
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<tr>
<td>十溴聯苯 / Decabromobiphenyl</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
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<tr>
<td>多溴聯苯醚總和 / Sum of PBDEs</td>
<td>mg/kg</td>
<td></td>
<td>-</td>
<td>n.d.</td>
<td>1000</td>
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<tr>
<td>一溴聯苯醚 / Monobromodiphenyl ether</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015)，以氣相層析儀/質譜儀檢測。/ With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
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<td>n.d.</td>
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</tr>
<tr>
<td>二溴聯苯醚 / Dibromodiphenyl ether</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015)，以氣相層析儀/質譜儀檢測。/ With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
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<td>n.d.</td>
<td>-</td>
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<td>三溴聯苯醚 / Tribromodiphenyl ether</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015)，以氣相層析儀/質譜儀檢測。/ With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
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<td>n.d.</td>
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<td>四溴聯苯醚 / Tetra bromodiphenyl ether</td>
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<td>参考 IEC 62321-6 (2015)，以氣相層析儀/質譜儀檢測。/ With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
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<tr>
<td>五溴聯苯醚 / Pentabromodiphenyl ether</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015)，以氣相層析儀/質譜儀檢測。/ With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>六溴聯苯醚 / Hexabromodiphenyl ether</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015)，以氣相層析儀/質譜儀檢測。/ With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
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<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>七溴聯苯醚 / Heptabromodiphenyl ether</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015)，以氣相層析儀/質譜儀檢測。/ With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>八溴聯苯醚 / Octabromodiphenyl ether</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015)，以氣相層析儀/質譜儀檢測。/ With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>九溴聯苯醚 / Nonabromodiphenyl ether</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015)，以氣相層析儀/質譜儀檢測。/ With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>十溴聯苯醚 / Decabromodiphenyl ether</td>
<td>mg/kg</td>
<td>参考 IEC 62321-6 (2015)，以氣相層析儀/質譜儀檢測。/ With reference to IEC 62321-6 (2015) and performed by GC/MS.</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>邻苯二甲酸二(2-乙基己基)酯 / DEHP (Di- (2-ethylhexyl) phthalate) (CAS No. : 117-81-7)</td>
<td>mg/kg</td>
<td>参考 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.</td>
<td>50</td>
<td>n.d.</td>
<td>1000</td>
</tr>
<tr>
<td>邻苯二甲酸丁苯酯 / BBP (Butyl Benzyl phthalate) (CAS No. : 85-68-7)</td>
<td>mg/kg</td>
<td>参考 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.</td>
<td>50</td>
<td>n.d.</td>
<td>1000</td>
</tr>
<tr>
<td>邻苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No. : 84-67-2)</td>
<td>mg/kg</td>
<td>62321-8 (2017). Analysis was performed by GC/MS.</td>
<td>50</td>
<td>n.d.</td>
<td>1000</td>
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<tr>
<td>邻苯二甲酸二异丁酯 / DIBP (Di-isobutyl phthalate) (CAS No. : 84-69-5)</td>
<td>mg/kg</td>
<td>62321-8 (2017). Analysis was performed by GC/MS.</td>
<td>50</td>
<td>n.d.</td>
<td>1000</td>
</tr>
</tbody>
</table>

### 备注(Note):

1. mg/kg = ppm: 0.1wt% = 1000ppm
2. MDL = Method Detection Limit（方法侦测极值）
3. n.d. = Not Detected（未检出）
4. "-" = Not Regulated（无规格值）

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試驗報告
Test Report

台灣化學纖維股份有限公司
FORMOSA CHEMICALS & FIBRE CORPORATION
台北市敦化北路201號
201, TUNG HWA N. ROAD, TAIPEI, TAIWAN

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

These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)

- 銅/鎰/鍶/汞
  - 用微波溶解儀/電熱板進行酸溶解
  - Acid digestion with microwave / hotplate
- 鉛/鍍/汞
  - 超音波溶解
  - Dissolving by ultrasonication
- 超過/過濾
  - Filtration
- 溶液/溶液
  - Solution
- 無/非金屬
  - Non-metal
- ABS / PC / PVC
- 其他材質/ others
- 金屬/金屬
  - Metal
- 水萃取
  - Boiling water extraction
- 冷卻後過濾樣品
  - Cool, filter digestate through filter
- 加入發色劑顏色
  - Add diphenylcarbazide for color development
- 以 UV-VIS 警測樣品溶液在 540 nm 的吸光度
  - Measure the absorbance at 540 nm by UV-VIS

測試樣品重量 / Sample Measurement

高麗硫酸溶解
- Salt acid dissolution

剪裁、製備樣品 / Cutting / Preparation
Test Report

Testing Laboratory:
FORMOSA CHEMICALS & FIBRE CORPORATION
201, TUNG HWA N. ROAD, TAIPEI, TAIWAN

Sample pretreatment

Screen analysis / 初篩分析

Sample extraction 樣品萃取/Soxhlet method 索氏萃取法

Concentrate/Dilute Extracted solution 萃取液濃縮/稀釋

Filter / 萃取液過濾

GC/MS / 氣相層析質譜儀

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

- Testing personnel: Yaling Tu
- Testing responsible: Troy Chang

First testing process
Optional screen process
Confirmation process
测试报告
Test Report

台湾化學纖維股份有限公司
FORMOSA CHEMICALS & FIBRE CORPORATION
台北市敦化北路201號
201, TUNG HWA N. ROAD, TAIPEI, TAIWAN

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

- 测试人员：涂雅芩 / Technician: Yaling Tu
- 测试负责人：张敬兴 / Supervisor: Troy Chang

【测试方法/Test method: IEC 62321-8】

1. 检样处理/分样 / Sample pretreatment/separation

2. 检样以THF四氯呋喃溶解萃取 / Sample dissolved/extracted by THF

3. 稀释提取液 / Dilute Extracted solution

4. 燃气层析质谱仪分析 / Analysis was performed by GC/MS
* 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.)

** 報告結尾 (End of Report) **