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

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）:

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) : POLYPROPYLENE IMPACT COPOLYMER (聚丙烯衝擊共聚物)
樣品型號(Style/Item No) : TA1RIPRO PP B8001, K3004, K3009AN, K3009AU, K3029, K3030, K6615, K7005, K7009, K7009AH, K7025, K8003, K8003AN, K8009, K8025, K8050, K8065, K8095, K8802, K9010, K9017, K9030, KP03B, T8002

收件日期(Sample Receiving Date) : 2019/04/18
測試期間(Testing Period) : 2019/04/18 to 2019/04/24

測試需求(Test Requested) : 依據客戶指定，參考RoHS 2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鎘、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) : 請參閱下一页 (Please refer to following pages).
測試結果(Test Results) : 請參閱下一页 (Please refer to following pages).
結論(Conclusion) : 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及其修訂指令(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.)

Signature Not Verified
For Question Please Contact with SGS
www.sgs.com.tw

Member of the SGS Group

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

測試報告

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

測試結果(Test Results)

測試部位(PART NAME) No.1: 白色塑膠粒 (WHITE PLASTIC PELLETS)

<table>
<thead>
<tr>
<th>測試項目 (Test Items)</th>
<th>單位 (Unit)</th>
<th>測試方法 (Method)</th>
<th>方法偵測極限值 (MDL)</th>
<th>結果 (Result)</th>
<th>限值 (Limit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>鎵 / Cadmium (Cd)</td>
<td>mg/kg</td>
<td>參考 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。</td>
<td>2</td>
<td>n.d.</td>
<td>100</td>
</tr>
<tr>
<td>鋅 / Lead (Pb)</td>
<td>mg/kg</td>
<td>參考 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-AES。</td>
<td>2</td>
<td>n.d.</td>
<td>1000</td>
</tr>
<tr>
<td>汞 / Mercury (Hg)</td>
<td>mg/kg</td>
<td>參考 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-AES。</td>
<td>2</td>
<td>n.d.</td>
<td>1000</td>
</tr>
<tr>
<td>六價銦 / Hexavalent Chromium (VI)</td>
<td>mg/kg</td>
<td>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。</td>
<td>8</td>
<td>n.d.</td>
<td>1000</td>
</tr>
<tr>
<td>多溴聯苯醚合 / Sum of PBBs</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>-</td>
<td>n.d.</td>
</tr>
<tr>
<td>一溴聯苯 / Monobromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>n.d.</td>
</tr>
<tr>
<td>二溴聯苯 / Dibromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>n.d.</td>
</tr>
<tr>
<td>三溴聯苯 / Tribromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>n.d.</td>
</tr>
<tr>
<td>四溴聯苯 / Tetramericbiphenyl</td>
<td>mg/kg</td>
<td>參考 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></td>
<td></td>
<td>5</td>
<td>n.d.</td>
</tr>
<tr>
<td>六溴聯苯 / Hexabromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>n.d.</td>
</tr>
<tr>
<td>七溴聯苯 / Heptabromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>n.d.</td>
</tr>
<tr>
<td>八溴聯苯 / Octabromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>n.d.</td>
</tr>
<tr>
<td>九溴聯苯 / Nonabromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>n.d.</td>
</tr>
<tr>
<td>十溴聯苯 / Decabromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>n.d.</td>
</tr>
<tr>
<td>測試項目 (Test Items)</td>
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</tr>
<tr>
<td>-----------------------</td>
<td>------------</td>
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<td>---------------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>多溴聯苯醚總和 / Sum of PBDEs</td>
<td>mg/kg</td>
<td>參考 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 n.d.</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>一溴聯苯醚 / Monobromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td>5 n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>二溴聯苯醚 / Dibromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td>5 n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>三溴聯苯醚 / Tribromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td>5 n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>四溴聯苯醚 / Tetrabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td>5 n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>五溴聯苯醚 / Pentabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td>5 n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>六溴聯苯醚 / Hexabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td>5 n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>七溴聯苯醚 / Heptabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td>5 n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>八溴聯苯醚 / Octabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td>5 n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>九溴聯苯醚 / Nonabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td>5 n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>十溴聯苯醚 / Decabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td>5 n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>邻苯二甲酸二(2-乙基己酯)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No.: 117-81-7)</td>
<td>mg/kg</td>
<td>參考 IEC 62321-8 (2017), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-8 (2017) and performed by GC/MS.</td>
<td>50 n.d.</td>
<td>1000</td>
<td></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></td>
<td>50 n.d.</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>邻苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)</td>
<td>mg/kg</td>
<td></td>
<td>50 n.d.</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>邻苯二甲酸二異丁酯 / DIBP (Di-(2-ethylhexyl) phthalate) (CAS No.: 84-69-5)</td>
<td>mg/kg</td>
<td></td>
<td>50 n.d.</td>
<td>1000</td>
<td></td>
</tr>
</tbody>
</table>

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)
These samples were dissolved totally by pre-conditioning method according to below flow chart.

1. Cutting, Preparation
2. Acid digestion with microwave / hotplate
3. Filtration
4. Solution
5. 1) Alkaline fusion  2) Acid digestion / HCl to dissolve
6. Solution
7. Add diphenyl-carbazide for color development
8. Measure the absorbance at 540 nm by UV-VIS
初筛分析

 Supervisor: Troy Chang

Optional screen process

Analytical flow chart - PBB/PBDE

Confirmation process

样品萃取

气相层析质谱仪

First testing process

样品前处理

Technician: Yaling Tu

确认程序

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初筛分析

 Supervisor: Troy Chang

Optional screen process

Analytical flow chart - PBB/PBDE

Confirmation process

样品萃取

气相层析质谱仪

First testing process

样品前处理

Technician: Yaling Tu

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测试报告
Test Report
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可塑劑分析流程圖 / Analytical flow chart - Phthalate

- 試驗人員：涂雅苓 / Technician: Yaling Tu
- 試驗負責人：張啟興 / Supervisor: Troy Chang

【測試方法/Test method: IEC 62321-8】

- 樣品前處理/分樣 / Sample pretreatment/separation
- 樣品以 THF 四氫呋喃溶解萃取 / Sample dissolved/extracted by THF
- 萃取液稀釋 / Dilute Extracted solution
- 氣相層析質譜儀分析 / Analysis was performed by GC/MS
* The tested sample / part is marked by an arrow if it's shown on the photo. *

** 報告結尾 (End of Report) **