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

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(s) 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 HOMO POLYMER (聚丙烯單聚物)

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 of 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.)

Troy Chang / Manager - Taip
Signed for and behalf of SGS TAIWAN LTD.
Chemical Laboratory - Taipei
<table>
<thead>
<tr>
<th>测试项目 (Test Items)</th>
<th>单位 (Unit)</th>
<th>测试方法 (Method)</th>
<th>方法检测极限值 (MDL)</th>
<th>结果 (Result)</th>
<th>限值 (Limit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>镉 / 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-AES.</td>
<td>2</td>
<td>n.d.</td>
<td>100</td>
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<tr>
<td>铅 / Lead (Pb)</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-AES.</td>
<td>2</td>
<td>n.d.</td>
<td>1000</td>
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<tr>
<td>汞 / Mercury (Hg)</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>二溴 - 五溴聯苯 (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></td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>二溴聯苯 / Dibromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>三溴聯苯 / Tribromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>四溴聯苯 / Tetrabromobiphenyl</td>
<td>mg/kg</td>
<td></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>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>六溴聯苯 / Hexabromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>七溴聯苯 / Heptabromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>八溴聯苯 / Octabromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>九溴聯苯 / Nonabromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
<td>十溴聯苯 / Decabromobiphenyl</td>
<td>mg/kg</td>
<td></td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
</tr>
<tr>
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</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>-</td>
<td>n.d.</td>
<td>1000</td>
</tr>
<tr>
<td>一溴聯苯醚 / Monobromodiphenyl ether</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>
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<tr>
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<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>三溴聯苯醚 / Tribromodiphenyl ether</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>四溴聯苯醚 / Tetrabromodiphenyl ether</td>
<td>mg/kg</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>五溴聯苯醚 / Pentabromodiphenyl ether</td>
<td>mg/kg</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>六溴聯苯醚 / Hexabromodiphenyl ether</td>
<td>mg/kg</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>七溴聯苯醚 / Heptabromodiphenyl ether</td>
<td>mg/kg</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>八溴聯苯醚 / Octabromodiphenyl ether</td>
<td>mg/kg</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>九溴聯苯醚 / Nonabromodiphenyl ether</td>
<td>mg/kg</td>
<td>5</td>
<td>n.d.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>十溴聯苯醚 / Decabromodiphenyl ether</td>
<td>mg/kg</td>
<td>5</td>
<td>n.d.</td>
<td>-</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>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.</td>
<td>50</td>
<td>n.d.</td>
<td>1000</td>
</tr>
<tr>
<td>邻苯二甲酸丁苯酯酸 / BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)</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). Analysis was performed by GC/MS.</td>
<td>50</td>
<td>n.d.</td>
<td>1000</td>
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<tr>
<td>邻苯二甲酸二丁酯酸 / DBP (Dibutyl phthalate) (CAS No.: 84-77-2)</td>
<td>mg/kg</td>
<td>62321-8 (2017). Analysis was performed by GC/MS.</td>
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<td>n.d.</td>
<td>1000</td>
</tr>
<tr>
<td>邻苯二甲酸二乙酯酸 / DIBP (Diisobutyl phthalate) (CAS No.: 84-69-5)</td>
<td>mg/kg</td>
<td>50</td>
<td>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)
測試報告
Test Report
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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. (CrVI test method excluded)

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

用微波波解析儀/電熱板進行酸溶解
Acid digestion with microwave / hotplate

1) 竹編緞法 / Alkali fusion
2) 塩酸溶解 / HCl to dissolve

溶液 / Solution

過濾 / Filtration

冷卻後過濾樣品 / Cool, filter digestate through filter

加入發色劑顯色 / Add diphenyl-carbazide for color development

以 UV-VIS 波段測量樣品溶液在 540 nm 的吸光度
Measure the absorbance at 540 nm by UV-VIS
Test Report

索式萃取法

Sample / 樣品
Sample pretreatment / 樣品前處理
Screen analysis / 初篩分析
Sample extraction 樣品萃取/索式萃取
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

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SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
25, Wu Chuan 7th Road, New Taipei Industrial Park, Wu Ku District, New Taipei City, Taiwan. 台北市五股區新北產業園區五福七路25號
T+886 (02)2299 3939  F+886 (02)2299 3237  www.sgs.com.tw

Member of the SGS Group

201, TUNG HWA N. ROAD, TAIPEI, TAIWAN

測試報告

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索 式 萃 取 法

Sample / 樣品
Sample pretreatment / 樣品前處理
Screen analysis / 初篩分析
Sample extraction 樣品萃取/索式萃取
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

測試人員: 凃雅苓 / 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

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

1. 樣品前處理/分樣 / Sample pretreatment/separation
2. 樣品以 THF 四氯呋喃溶解萃取 / Sample dissolved/extracted by THF
3. 萃取液稀釋 / Dilute Extracted solution
4. 氣相層析質譜儀分析 / Analysis was performed by GC/MS
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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/2019/44841

** 報告結尾 (End of Report) **