測試報告
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

以下測試樣品係由申請廠商所提供之
樣品型號 (Style/Item No.) : TAIRILITE AC384X
樣品名稱 (Sample Description) : POLYCARBONATE（聚碳酸酯樹脂）
收件日期 (Sample Receiving Date) : 2020/05/25
測試期間 (Testing Period) : 2020/05/25 to 2020/05/29

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的測試鍺、鈦、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).)

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

結論 (Conclusion) : 根據客戶所提供的樣品，其鍺、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.)
## 測試結果 (Test Results)

測試部位 (PART NAME) No. 1 : 透明塑膠粒 (TRANSPARENT 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>MDL</th>
<th>結果 (Result) No. 1</th>
<th>限值 (Limit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>鉻 / Cadmium (Cd)</td>
<td>mg/kg</td>
<td>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.</td>
<td>2</td>
<td>n.d.</td>
<td>100</td>
</tr>
<tr>
<td>鉛 / Lead (Pb)</td>
<td>mg/kg</td>
<td>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.</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 , 以感應耦合電漿發射光譜儀檢測. / With reference to IEC 62321-4:2013+ AMD1:2017 and performed by ICP-OES.</td>
<td>2</td>
<td>n.d.</td>
<td>1000</td>
</tr>
<tr>
<td>六價鉻 / 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>多溴聯苯總和 / Sum of PBBs</td>
<td>mg/kg</td>
<td>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.</td>
<td>-</td>
<td>n.d.</td>
<td>1000</td>
</tr>
<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>
</tbody>
</table>

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [https://www.sgs.com/Terms-and-Conditions.html](https://www.sgs.com/Terms-and-Conditions.html) and, for electronic formal documents, subject to Terms and Conditions for Electronic Documents at [https://www.sgs.com/Terms-and-Conditions.html](https://www.sgs.com/Terms-and-Conditions.html). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company’s findings at the time of its intervention only and within the limits of client’s instruction, if any. The Company’s sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
測試報告
Test Report

<table>
<thead>
<tr>
<th>測試項目 (Test Items)</th>
<th>單位 (Unit)</th>
<th>測試方法 (Method)</th>
<th>MDL</th>
<th>結果 (Result)</th>
<th>限值 (Limit)</th>
</tr>
</thead>
<tbody>
<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>
</tr>
<tr>
<td>一溴聯苯醚 / Monobromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>二溴聯苯醚 / Dibromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>三溴聯苯醚 / Tribromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>四溴聯苯醚 / Tetrabromodiphenyl ether</td>
<td>mg/kg</td>
<td>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.</td>
<td></td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>五溴聯苯醚 / Pentabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>六溴聯苯醚 / Hexabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>七溴聯苯醚 / Heptabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>八溴聯苯醚 / Octabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>九溴聯苯醚 / Nonabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>十溴聯苯醚 / Decabromodiphenyl ether</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>5</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></td>
<td></td>
<td>50</td>
<td>n.d.</td>
</tr>
<tr>
<td>邻苯二甲酸丁基苯甲酯 / 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 / 質譜儀檢測。 / With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.</td>
<td></td>
<td>50</td>
<td>n.d.</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></td>
<td>50</td>
<td>n.d.</td>
</tr>
<tr>
<td>邻苯二甲酸二異丁酯 / DIBP (Diisobutyl phthalate) (CAS No.: 84-69-5)</td>
<td>mg/kg</td>
<td></td>
<td></td>
<td>50</td>
<td>n.d.</td>
</tr>
</tbody>
</table>

備註 (Note):
1. mg/kg = ppm : 0.1wt% = 1000ppm
2. MDL = Method Detection Limit (方法偵測極限值)
3. n.d. = Not Detected (未檢出)
4. "-" = Not Regulated (無規格值)
5. 符合性結果之判定係以測試結果與限值做比較。 / The statement of compliance conformity is based on comparison of testing results and limits.
Test Report

測試報告

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

根据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 VI test method excluded)

剪裁、製備樣品 / Cutting, Preparation
測試樣品重量 / Sample Measurement

鉛 Pb/錫 Cd/汞 Hg

用微波溶解儀/電熱板進行酸消解
Acid digestion with microwave / hotplate

通過 / Filtration

溶液 / Solution

殘渣 / Residue

1) 鹽酸融解 / Alkali fusion
2) 鹽酸溶解 / HCl to dissolve

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

以 UV-VIS，測定樣品溶液在 540 nm 的
吸光度 / Measure the absorbance at 540 nm by UV-VIS

金屬 / Metal

非金屬 / Non-metal

ABS / PC / PVC

其他物質/Others

沸水萃取 / Boiling

水蒸氣提取

水蒸氣萃取 / Boiling water extraction

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

加入發色劑顯色

以 UV-VIS，測定樣品溶液在 540 nm 的
吸光度 / Measure the absorbance at 540 nm by UV-VIS
多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBB/PBDE

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

Sample / 樣品
↓
Sample pretreatment / 樣品前處理
↓
Screen analysis / 初篩分析
↓
Sample extraction 樣品萃取/索式萃取法
↓
Concentrate/Dilute Extracted solution 萃取液濃縮/稀釋
↓
Filter / 萃取液濾過
↓
GC/MS / 氣相層析質譜儀
Analytical flow chart - Phthalate

【測試方法/Test method: IEC 62321-8】

Sample pretreatment/separation

Sample dissolved/extracted by THF

Dilute Extracted solution

Analysis was performed by GC/MS
* The tested sample / part is marked by an arrow if it’s shown on the photo. *