

## 測試報告 Test Report

ISOLA GROUP

號碼(No.): ETA20A00234

日期(Date): 29-Oct-2020

頁數(Page): 1 of 9

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) :

樣品名稱(Sample Name) : LAMINATE  
樣品型號(Style/Item No.) : I-SPEED

=====  
收件日(Sample Receiving Date) : 20-Oct-2020  
測試期間(Testing Period) : 20-Oct-2020 to 29-Oct-2020

測試需求(Test Requested) : (1) 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).)

(2) 其他測試項目請見下一頁。(Please refer to next pages for the other item(s).)  
測試結果(Test Results) : 請參閱下一頁 (Please refer to following pages.)

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.)

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



PIN CODE: 5FC4E2EB

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### 測試部位敘述 (Test Part Description)

No.1 : 銅色片狀 (COPPER COLORED SHEET)

### 測試結果 (Test Results)

| 測試項目<br>(Test Items)                                       | 測試方法<br>(Method)  | 單位<br>(Unit) | MDL | 結果<br>(Result) | 限值<br>(Limit) |
|--|---|--------------|-----|----------------|---------------|
|  |   |              |     | No.1           |               |
| 鎘 (Cd) (Cadmium (Cd)) (CAS No.: 7440-43-9)                 | 參考IEC 62321-5: 2013 · 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)  | mg/kg        | 2   | n.d.           | 100           |
| 鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1)                    |   | mg/kg        | 2   | n.d.           | 1000          |
| 汞 (Mercury) (Hg) (CAS No.: 7439-97-6)                      | 參考IEC 62321-4: 2013+ AMD1: 2017 · 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.)  | mg/kg        | 2   | n.d.           | 1000          |
| 六價鉻 (Hexavalent Chromium) Cr(VI) (CAS No.: 18540-29-9) (◆) | 參考IEC 62321-5: 2013, IEC 62321-7-2: 2017 · 以感應耦合電漿發射光譜儀、紫外光-可見光分光光度計分析。(With reference to IEC 62321-5: 2013, IEC 62321-7-2: 2017, analysis was performed by ICP-OES, UV-VIS.) | mg/kg        | 8   | n.d.           | 1000          |
| 一溴聯苯 (Monobromobiphenyl)                                   | 參考IEC 62321-6: 2015 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)  | mg/kg        | 5   | n.d.           | -             |
| 二溴聯苯 (Dibromobiphenyl)                                     |   | mg/kg        | 5   | n.d.           | -             |
| 三溴聯苯 (Tribromobiphenyl)                                    |   | mg/kg        | 5   | n.d.           | -             |
| 四溴聯苯 (Tetrabromobiphenyl)                                  |   | mg/kg        | 5   | n.d.           | -             |
| 五溴聯苯 (Pentabromobiphenyl)                                  |   | mg/kg        | 5   | n.d.           | -             |
| 六溴聯苯 (Hexabromobiphenyl)                                   |   | mg/kg        | 5   | n.d.           | -             |
| 七溴聯苯 (Heptabromobiphenyl)                                  |   | mg/kg        | 5   | n.d.           | -             |
| 八溴聯苯 (Octabromobiphenyl)                                   |   | mg/kg        | 5   | n.d.           | -             |
| 九溴聯苯 (Nonabromobiphenyl)                                   |   | mg/kg        | 5   | n.d.           | -             |
| 十溴聯苯 (Decabromobiphenyl)                                   |   | mg/kg        | 5   | n.d.           | -             |
| 多溴聯苯總和 (Sum of PBBs)                                       |   | mg/kg        | -   | n.d.           | 1000          |

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| 測試項目<br>(Test Items)   | 測試方法<br>(Method)   | 單位<br>(Unit) | MDL | 結果<br>(Result) | 限值<br>(Limit) |
|--|--|--------------|-----|----------------|---------------|
|  |  |              |     | No.1           |               |
| 一溴聯苯醚 (Monobromodiphenyl ether)  | 參考IEC 62321-6: 2015 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.) | mg/kg        | 5   | n.d.           | -             |
| 二溴聯苯醚 (Dibromodiphenyl ether)  |  | mg/kg        | 5   | n.d.           | -             |
| 三溴聯苯醚 (Tribromodiphenyl ether)   |  | mg/kg        | 5   | n.d.           | -             |
| 四溴聯苯醚 (Tetrabromodiphenyl ether)   |  | mg/kg        | 5   | n.d.           | -             |
| 五溴聯苯醚 (Pentabromodiphenyl ether)   |  | mg/kg        | 5   | n.d.           | -             |
| 六溴聯苯醚 (Hexabromodiphenyl ether)  |  | mg/kg        | 5   | n.d.           | -             |
| 七溴聯苯醚 (Heptabromodiphenyl ether)   |  | mg/kg        | 5   | n.d.           | -             |
| 八溴聯苯醚 (Octabromodiphenyl ether)  |  | mg/kg        | 5   | n.d.           | -             |
| 九溴聯苯醚 (Nonabromodiphenyl ether)  |  | mg/kg        | 5   | n.d.           | -             |
| 十溴聯苯醚 (Decabromodiphenyl ether)  |  | mg/kg        | 5   | n.d.           | -             |
| 多溴聯苯醚總和 (Sum of PBDEs)   |  | mg/kg        | -   | n.d.           | 1000          |
| 鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP)) (CAS No.: 85-68-7)                | 參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.) | mg/kg        | 50  | n.d.           | 1000          |
| 鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP)) (CAS No.: 84-74-2)                      |  | mg/kg        | 50  | n.d.           | 1000          |
| 鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP)) (CAS No.: 117-81-7)  |  | mg/kg        | 50  | n.d.           | 1000          |
| 鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)                |  | mg/kg        | 50  | n.d.           | 1000          |
| 鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1) |  | mg/kg        | 50  | n.d.           | -             |
| 鄰苯二甲酸二異壬酯 (DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0) |  | mg/kg        | 50  | n.d.           | -             |
| 鄰苯二甲酸二正辛酯 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)               |  | mg/kg        | 50  | n.d.           | -             |

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| 測試項目<br>(Test Items)  | 測試方法<br>(Method)   | 單位<br>(Unit) | MDL | 結果<br>(Result) | 限值<br>(Limit) |
|---|--|--------------|-----|----------------|---------------|
|   |  |              |     | No.1           |               |
| 六溴環十二烷及所有主要被辨別出的異構物 (HBCDD) ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ - HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ - HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8)) | 參考IEC 62321: 2008 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321: 2008, analysis was performed by GC/MS.) | mg/kg        | 5   | n.d.           | -             |

### 備註(Note) :

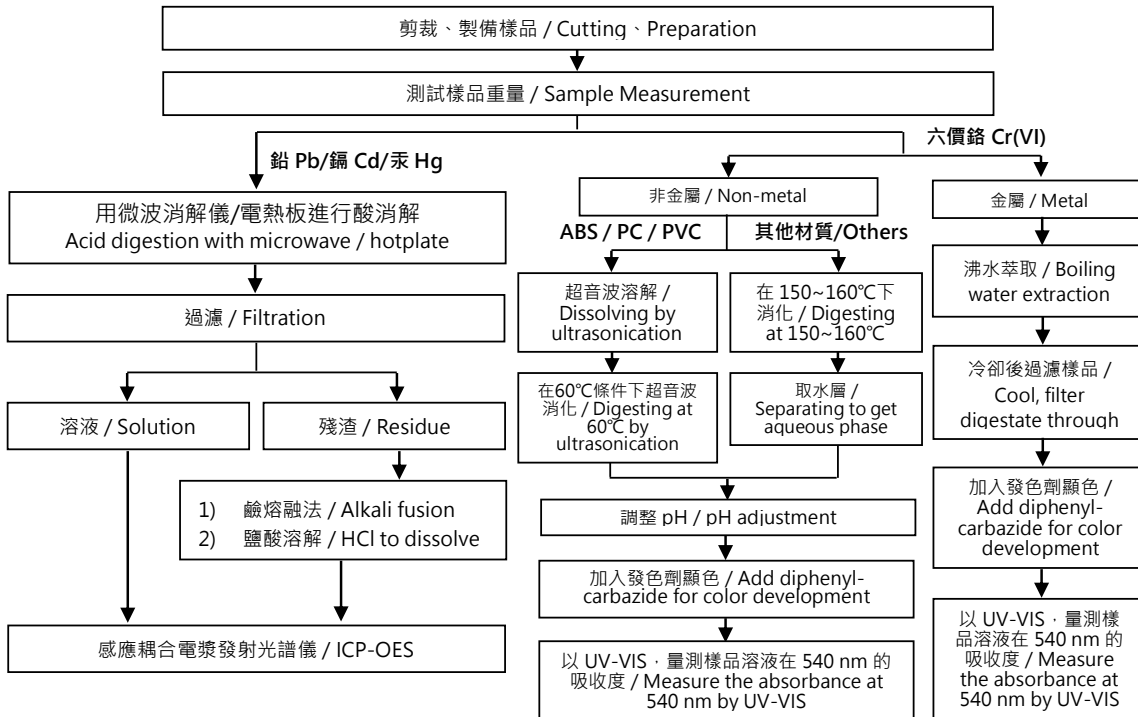
1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit (方法偵測極限值)
3. n.d. = Not Detected (未檢出) ; 小於MDL / Less than MDL
4. "-" = Not Regulated (無規格值)
5. (◆) :  
若鉻含量小於六價鉻之方法偵測極限值 · 則六價鉻為n.d. · 不須再測試六價鉻。  
The result of Cr(VI) is "n.d." as the result of Chromium (Cr) is less than the MDL of Cr(VI), 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.
6. 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.)

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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.  
(Cr<sup>6+</sup> test method excluded)



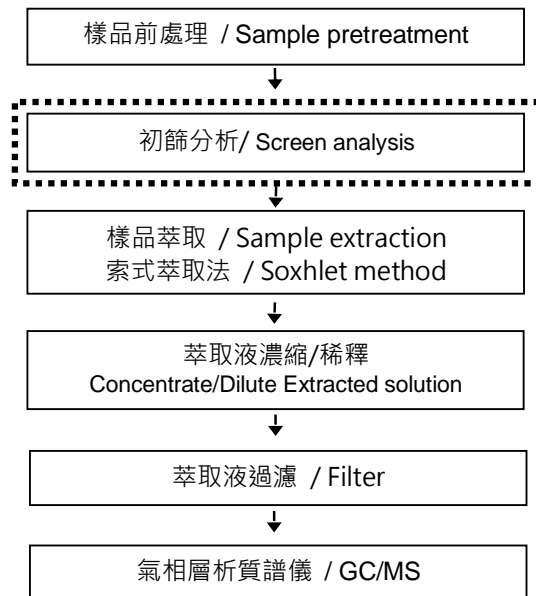
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### 多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs

初次測試程序 / First testing process      ———→

選擇性篩檢程序 / Optional screen process      ·····→

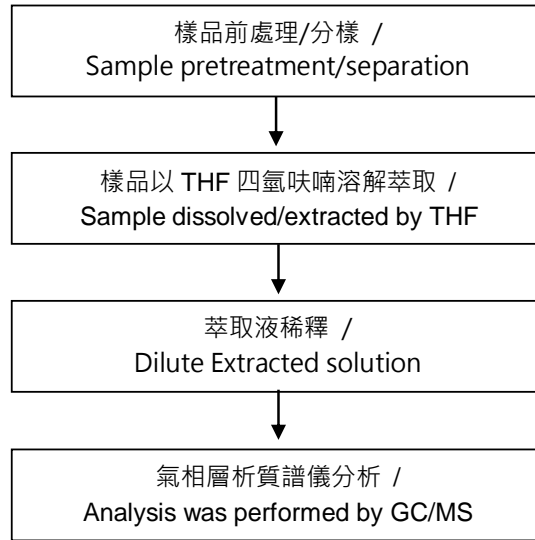
確認程序 / Confirmation process      - - - →



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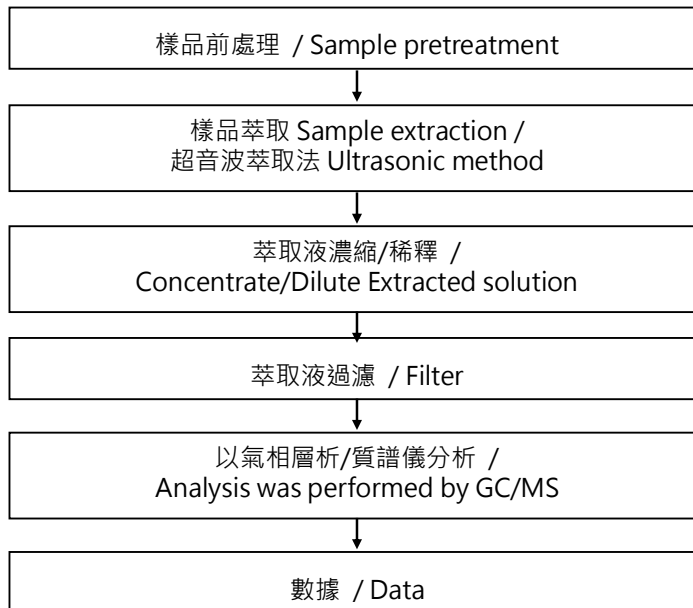
可塑劑分析流程圖 / Analytical flow chart - Phthalate

【測試方法/Test method: IEC 62321-8】



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



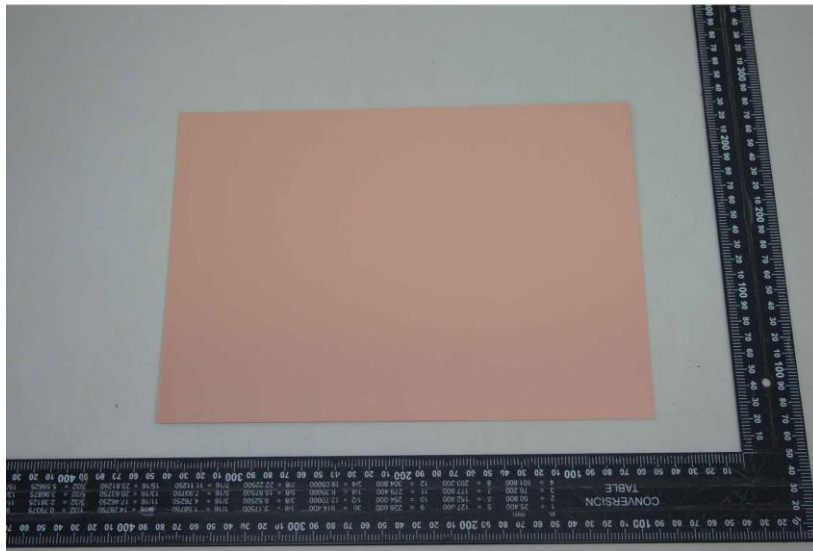
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\* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。\*

(The tested sample / part is marked by an arrow if it's shown on the photo.)

### ETA20A00234



\*\* 報告結尾 (End of Report) \*\*

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