

## **ICP Test Report Certification Packet**

| Company name:   | Littelfuse, Inc.                          |
|-----------------|---|
| Product Series: | Clip                                      |
| Product #:      | 04450001N/ 044500023N/ 10207101009 series |
| Issue Date:     | April 21, 2014                            |

It is hereby certified by Littelfuse, Inc. that there is neither RoHS (EU Directive 2002/95/EC, 2011/65/EU)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes. In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by:

FH. CABILAN JORDANUF

[Global EHS Engineer]

(1) Parts, sub-materials and unit parts

This document covers the 04450001N/ 044500023N/ 10207101009 series RoHS-Compliant series products manufactured by Littelfuse, Inc.

< Raw Materials Used Please see Table 1

(2) The ICP data on all measurable substancesPlease see appropriate pages as identifed in Table 1

Remarks :



| Total Parts | Raw Material Part Number | Raw Material Description | Page(s) |
|-------------|--------------------------|--------------------------|---------|
| 1           | C2680                    | Brass                    | 3-8     |
| 2           | NA                       | Tin Plating              | 9-17    |
| 3           | NA                       | Nickel Plating           | 18-29   |

### Table 1: List of Raw Materials covered by this report



### 測試報告 <sup>號碼(No.)</sup>: CE/2013/C0497 日期 **Test Report**

日期(Date) : 2013/12/10

第一伸銅科技股份有限公司 FIRST COPPER TECHNOLOGY CO., LTD. 高雄市小港區沿海一路479號 479, YANHAI 1ST. ROAD, SHAW KANG DISTRICT, KAOHSIUNG, TAIWAN R. O. C.

# 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)   | : | 第一伸銅科技股份有限公司(FIRST COPPER TECHNOLOGY CO., LTD.) |  |
|-----------------------------|---|---|--|
| 樣品名稱(Sample Description)    | : | BRASS(黄銅)                                       |  |
| 樣品型號(Style/Item No.)        | : | C2680   |  |
| 收件日期(Sample Receiving Date) | : | 2013/12/03                                      |  |
| 測試期間(Testing Period)        | : | 2013/12/03 TO 2013/12/10                        |  |
|                             |   |   |  |

#### \_\_\_\_\_

測試需求(Test Requested): 依據客户要求,參考RoHS 2011/65/EU Annex II 指令進行鎬,鉛,汞,六價鉻,多溴 聯苯,多溴聯苯醚測試. (As specified by client, with reference to RoHS Directive 2011/65/EU Annex II to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs contents in the submitted sample.)

- **测試方法(Test Method)** : 請見下一頁 (Please refer to next pages).
- 测试结果(Test Results) : 請見下一頁 (Please refer to next pages).



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### 測試報告 號碼(No.) : CE/2013/C0497 **Test Report**

日期(Date): 2013/12/10

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### 測試結果(Test Results)

測試部位(PART NAME)No.1 : 黄銅色金屬 (BRASS METAL)

| 測試項目<br>(Test Items)                | 單位<br>(Unit) | 測試方法<br>(Method)   | 方法偵測<br>極限値<br>(MDL) | 結果<br>(Result)<br>No.1 |
|-------------------------------------|--------------|--|----------------------|------------------------|
| 鎬 / Cadmium (Cd)                    | mg/kg        | 參考IEC 62321-5: 2013方法,以感應耦合<br>電漿原子發射光譜儀檢測. / With<br>reference to IEC 62321-5: 2013 and<br>performed by ICP-AES.              | 2                    | n.d.                   |
| 鉛 / Lead (Pb)                       | mg/kg        | 參考IEC 62321-5: 2013方法,以感應耦合<br>電漿原子發射光譜儀檢測. / With<br>reference to IEC 62321-5: 2013 and<br>performed by ICP-AES.              | 2                    | 12                     |
| 汞 / Mercury (Hg)                    | mg/kg        | 參考IEC 62321-4: 2013方法,以感應耦合<br>電漿原子發射光譜儀檢測. / With<br>reference to IEC 62321-4: 2013 and<br>performed by ICP-AES.              | 2                    | n.d.                   |
| 六價鉻 / Hexavalent Chromium<br>Cr(VI) | **           | 參考IEC 62321: 2008方法,以沸水萃取法<br>檢測. / With reference to IEC 62321:<br>2008 and performed by Boiling water<br>extraction Method.# | #                    | Negative               |
| 多溴聯苯總和 / Sum of PBBs                | mg/kg        |  | -                    | n.d.                   |
| 一溴聯苯 / Monobromobiphenyl            | mg/kg        |  | 5                    | n.d.                   |
| 二溴聯苯 / Dibromobiphenyl              | mg/kg        |  | 5                    | n.d.                   |
| 三溴聯苯 / Tribromobiphenyl             | mg/kg        | ĺ  | 5                    | n.d.                   |
| 四溴聯苯 / Tetrabromobiphenyl           | mg/kg        | 參考IEC 62321:2008方法,以氣相層析/質   | 5                    | n.d.                   |
| 五溴聯苯 / Pentabromobiphenyl           | mg/kg        | 譜儀檢測. / With reference to IEC  | 5                    | n.d.                   |
| 六溴聯苯 / Hexabromobiphenyl            | mg/kg        | 62321: 2008 and performed by GC/MS.  | 5                    | n.d.                   |
| 七溴聯苯 / Heptabromobiphenyl           | mg/kg        |  | 5                    | n.d.                   |
| 入溴聯苯 / 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.                   |

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號碼(No.): CE/2013/C0497 日期(Date): 2013/12/10

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FIRST COPPER TECHNOLOGY CO., LTD.

高雄市小港區沿海一路479號

479, YANHAI 1ST. ROAD, SHAW KANG DISTRICT, KAOHSIUNG, TAIWAN R. O. C.

| 測試項目<br>(Test Items)             | 單位<br>(Unit) | 測試方法<br>(Method)                    | 方法偵測<br>極限値<br>(MDL) | 結果<br>(Result)<br>No.1 |
|----------------------------------|--------------|-------------------------------------|----------------------|------------------------|
| 多溴聯苯醚總和 / Sum of PBDEs           | mg/kg        |                                     | -                    | n.d.                   |
| 一溴聯苯醚 / Monobromodiphenyl ether  | 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        | 参考IEC 62321: 2008方法,以氣相層析/質         | 5                    | n.d.                   |
| 四溴聯苯醚 / Tetrabromodiphenyl ether | mg/kg        |                                     | 5                    | n.d.                   |
| 五溴聯苯醚 / Pentabromodiphenyl ether | mg/kg        | 譜儀檢測. / With reference to IEC       | 5                    | n.d.                   |
| 六溴聯苯醚 / Hexabromodiphenyl ether  | mg/kg        | 62321: 2008 and performed by GC/MS. | 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.                   |

#### 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 (無規格値)
- 5. \*\*= Qualitative analysis (No Unit) 定性分析(無單位)

6. # = a. Positive means the presence of CrVI on the tested areas (Positive表示測試區域偵測到六價路)

- b. Negative means the absence of CrVI on the tested areas
- (Negative表示测试區域未偵測到六價路)

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> tested areas. / 該溶液濃度≥0.02 mg/kg with 50 cm<sup>2</sup> (tested areas)

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頁數(Page): 4 of 6

第一伸銅科技股份有限公司

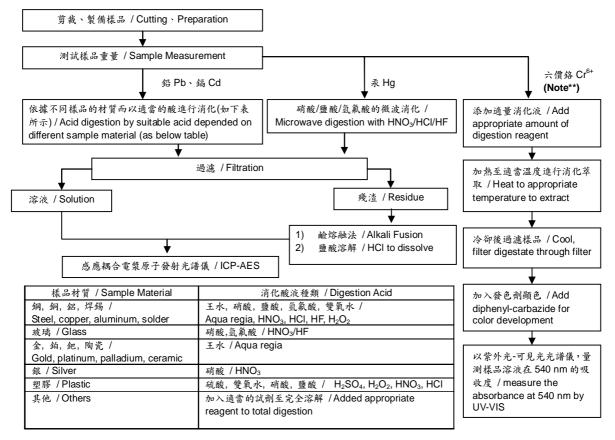
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高雄市小港區沿海一路479號

479, YANHAI 1ST. ROAD, SHAW KANG DISTRICT, KAOHSIUNG, TAIWAN R. O. C.

1) 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)

- 测試人員:楊登偉 / Name of the person who made measurement: Climbgreat Yang 2)
- 3) 測試負責人:張啓興 / Name of the person in charge of measurement: Troy Chang



Note\*\*:(1) 針對非金屬材料加入鹼性消化液,加熱至 90~95℃萃取. / For non-metallic material, add alkaline digestion reagent and heat to 90~95°C

(2) 針對金屬材料加入純水,加熱至沸騰萃取. / For metallic material, add pure water and heat to boiling.

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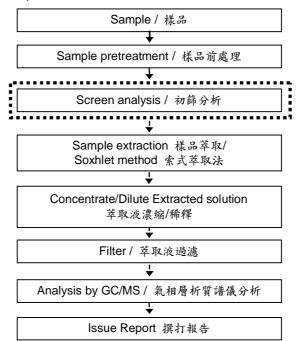
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#### 多溴聯苯/多溴聯苯醚分析流程圖 / PBB/PBDE analytical FLOW CHART

測試人員:翁賜彬 / Name of the person who made measurement: Roman Wong
 測試負責人:張啓興 / Name of the person in charge of measurement: 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 ----->



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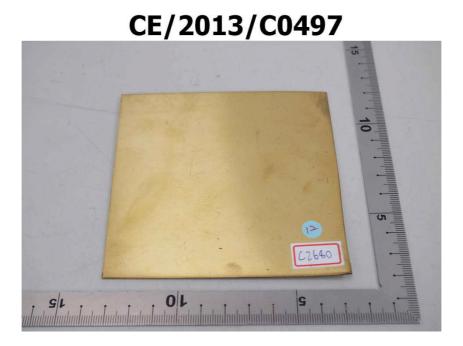
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> \* 照片中如有箭頭標示,則表示為實際檢測之樣品/部位. \* (The tested sample / part is marked by an arrow if it's shown on the photo.)



\*\* 報告結尾 (End of Report) \*\*

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No. SHAEC1316207102

Date: 20 Aug 2013

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LITTELFUSE PHILIPPINES INC. LIMA TECHNOLOGY CENTER, LIPA CITY, MALVAR, BATANGAS

The following sample(s) was/were submitted and identified on behalf of the clients as : Sn

| SGS Job No. :             | SP13-024385 - SUZ                        |
|---------------------------|--|
| Buyer :                   | LITTELFUSE PHILIPPINES INC.              |
| Supplier :                | LITTELFUSE PHILIPPINES INC.              |
| Date of Sample Received : | 16 Aug 2013                              |
| Testing Period :          | 16 Aug 2013 - 20 Aug 2013                |
| Test Requested :          | Selected test(s) as requested by client. |
| Test Method :             | Please refer to next page(s).            |
| Test Results :            | Please refer to next page(s).            |

Signed for and on behalf of SGS-CSTC Ltd.

JJ Fan Approved Signatory

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(a) (a, ) 3<sup>rd</sup>Building, No.889 Yishan Road Xuhui District, Shanghai China 200233 中国・上海・徐江区宜山路889号3号楼 邮编: 200233 t E&E (86-21) 61402553 f E&E (86-21)64953679 www.cn.sgs.com HL: (86-21) 61402594 HL: (86-21)54500353 e sgs.china@sgs.com



No. SHAEC1316207102

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Test Results :

Test Part Description :

| Specimen No. | SGS Sample ID    | Description  |
|--------------|------------------|--------------|
| 1            | SHA13-162071.002 | Silver metal |

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected ( < MDL )
- (4) "-" = Not Regulated

### RoHS Directive 2011/65/EU

Test Method : (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.

- (2) With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
- (3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
- (4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.
- (5) With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

| Test Item(s)                 | <u>Limit</u> | <u>Unit</u> | MDL        | <u>002</u> |
|------------------------------|--------------|-------------|------------|------------|
| Cadmium (Cd)                 | 100          | mg/kg       | 2          | ND         |
| Lead (Pb)                    | 1000         | mg/kg       | 2          | 48         |
| Mercury (Hg)                 | 1000         | mg/kg       | 2          | ND         |
| Hexavalent Chromium (Cr(VI)) | -            | -           | $\diamond$ | Negative   |
| Sum of PBBs                  | 1000         | mg/kg       | -          | ND         |
| Monobromobiphenyl            | -            | mg/kg       | 5          | ND         |
| Dibromobiphenyl              | -            | mg/kg       | 5          | ND         |
| Tribromobiphenyl             | -            | mg/kg       | 5          | ND         |
| Tetrabromobiphenyl           | -            | mg/kg       | 5          | ND         |
| Pentabromobiphenyl           | -            | mg/kg       | 5          | ND         |
| Hexabromobiphenyl            | -            | mg/kg       | 5          | ND         |
| Heptabromobiphenyl           | -            | mg/kg       | 5          | ND         |
| Octabromobiphenyl            | -            | mg/kg       | 5          | ND         |
| Nonabromobiphenyl            | -            | mg/kg       | 5          | ND         |
| Decabromobiphenyl            | -            | mg/kg       | 5          | ND         |
| Sum of PBDEs                 | 1000         | mg/kg       | -          | ND         |
| Monobromodiphenyl ether      | -            | mg/kg       | 5          | ND         |
|                              |              |             |            |            |

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| Test Report              | No. SHAEC13162071 | No. SHAEC1316207102 |     | Aug 2013   | Page 3 of 9 |
|--------------------------|-------------------|---------------------|-----|------------|-------------|
| Test Item(s)             | Limit             | <u>Unit</u>         | MDL | <u>002</u> |             |
| Dibromodiphenyl ether    | -                 | mg/kg               | 5   | ND         |             |
| Tribromodiphenyl ether   | -                 | mg/kg               | 5   | ND         |             |
| Tetrabromodiphenyl ether | -                 | mg/kg               | 5   | ND         |             |
| Pentabromodiphenyl ether | -                 | mg/kg               | 5   | ND         |             |
| Hexabromodiphenyl ether  | -                 | mg/kg               | 5   | ND         |             |
| Heptabromodiphenyl ether | -                 | mg/kg               | 5   | ND         |             |
| Octabromodiphenyl ether  | -                 | mg/kg               | 5   | ND         |             |
| Nonabromodiphenyl ether  | -                 | mg/kg               | 5   | ND         |             |
| Decabromodiphenyl ether  | -                 | mg/kg               | 5   | ND         |             |

#### Notes :

- (1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II
- (2) 
  Spot-test:
  - Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)

◇Boiling-water-extraction:

Negative = Absence of Cr(VI) coating

Positive = Presence of Cr(VI) coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

#### Halogen

Test Method : With reference to EN 14582: 2007, analysis was performed by Ion Chromatograph (IC).

| <u>Test Item(s)</u> | <u>Unit</u> | MDL | <u>002</u> |
|---------------------|-------------|-----|------------|
| Fluorine (F)        | mg/kg       | 50  | ND         |
| Chlorine (Cl)       | mg/kg       | 50  | ND         |
| Bromine (Br)        | mg/kg       | 50  | ND         |
| lodine (I)          | mg/kg       | 50  | ND         |
|                     |             |     |            |

#### **Phthalates**

Test Method : Determination of phthalates by GC-MS based on EN 14372:2004.

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| Test Report                                    | No. SHAEC1316207102       |                  | Date: 20 A          | ug 2013          | Page 4 of 9 |
|--|---------------------------|------------------|---------------------|------------------|-------------|
| <u>Test Item(s)</u><br>Dibutyl Phthalate (DBP) | <u>CAS NO.</u><br>84-74-2 | <u>Unit</u><br>% | <u>MDL</u><br>0.003 | <u>002</u><br>ND |             |
| Benzylbutyl Phthalate (BBP)                    | 85-68-7                   | %                | 0.003               | ND               |             |
| Bis-(2-ethylhexyl) Phthalate<br>(DEHP)         | 117-81-7                  | %                | 0.003               | ND               |             |

Notes :

 Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC: Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP) and Dibutyl phthalate (DBP) are considered as a priority for risk evaluation and substance restriction.

#### Hexabromocyclododecane (HBCDD)

Test Method : Determination of HBCDD by GC-MS based on IEC 62321:2008.

| Test Item(s)                   | <u>Unit</u> | <u>MDL</u> | <u>002</u> |
|--------------------------------|-------------|------------|------------|
| Hexabromocyclododecane (HBCDD) | mg/kg       | 10         | ND         |

Notes :

 Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC: Hexabromocyclododecane (HBCDD) is considered as a priority for risk evaluation and substance restriction.

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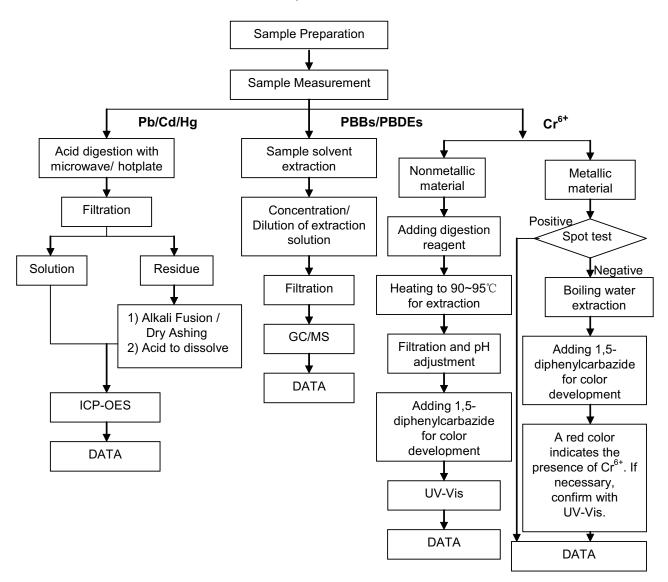
Date: 20 Aug 2013

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### ATTACHMENTS

### **RoHS Testing Flow Chart**

- 1) Name of the person who made testing: Jan Shi/Star Wang/Shara Wang/Gary Xu
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/ Jessy Huang
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded)



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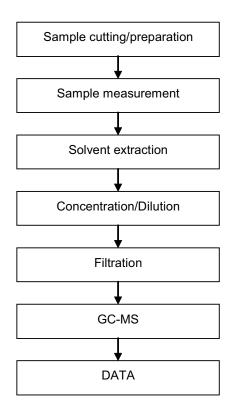
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### **Phthalates Testing Flow Chart**

- 1) Name of the person who made testing: Elyn Yao
- 2) Name of the person in charge of testing: Myra Ma



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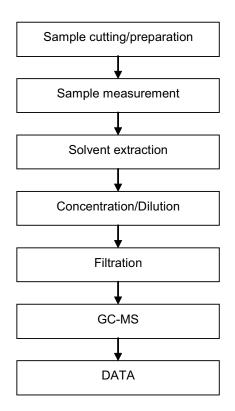
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### **HBCDD Testing Flow Chart**

1) Name of the person who made testing: Gary Xu

2) Name of the person in charge of testing: Jessy Huang



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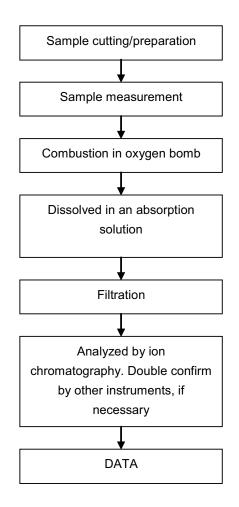
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### Halogen Testing (oxygen bomb) Flow Chart

1) Name of the person who made testing: Sisily Yin

2) Name of the person in charge of testing: Linda Li



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Sample photo:



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## 測試報告 號碼(No.): KA/2012/C2130 日期(Date): 2013/01/04 頁數(Page): 1 of 12

LITTELFUSE PHILIPPINES INC. LIMA TECHNOLOGY CENTER, LIPA CITY, MALVAR, BATANGAS

## 以下測試樣品係由客户送樣, 且由客户聲稱並經客户確認如下 (The following samples was/were submitted and identified by/on behalf of the client as):

樣品名稱(Sample Description) 收件日期(Sample Receiving Date) 測試期間(Testing Period) 送樣廠商(Sample Submitted By) : Ni PLATING MATERIAL : 2012/12/25

: 2012/12/25 TO 2013/01/04

: ASM HK

\_\_\_\_\_

測試結果(Test Results)

SGS Taiwan Limited

: 請見下一頁 (Please refer to next pages).

Ray Chang / Asst. Manage Signed for and on behalf of

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## 測試報告 號碼(No.): KA/2012/C2130 日期(Date): 2013/01/04 頁數(Page): 2 of 12

#### <u>測試結果(Test Results)</u>

| 測試項目<br>(Test Items)   | 單位<br>(Unit) | 測試方法<br>(Method)   | 方法偵測<br>極限値<br>(MDL)                                    | 結果<br>(Result)<br>NO.1 |
|--|--------------|--|---|------------------------|
| 鎬 / Cadmium (Cd)   | mg/kg        | 酸洗脱鍍層, 参考IEC 62321: 2008方法,<br>以感應耦合電漿原子發射光譜儀檢測. /<br>IEC 62321: 2008 application of<br>modified digestion by surface<br>etching and performed by ICP-AES. | 2   | n.d.                   |
| 鉛 / Lead (Pb)  | mg/kg        | 酸洗脱鍍層, 参考IEC 62321: 2008方法,<br>以感應耦合電漿原子發射光譜儀檢測. /<br>IEC 62321: 2008 application of<br>modified digestion by surface<br>etching and performed by ICP-AES. | 2   | n.d.                   |
| 禾 / Mercury (Hg)   | mg/kg        | 酸洗脱鍍層, 参考IEC 62321: 2008方法,<br>以感應耦合電漿原子發射光譜儀檢測. /<br>IEC 62321: 2008 application of<br>modified digestion by surface<br>etching and performed by ICP-AES. | 2   | n.d.                   |
| 六價络 / Hexavalent Chromium Cr(VI)<br>by boiling water extraction# | **           | 参考IEC 62321: 2008方法,用Boiling<br>water extraction方法检測. / With<br>reference to IEC 62321: 2008 and<br>performed by boiling water<br>extraction Method.       | 0.02mg/kg<br>with 50 cm<br><sup>2</sup> surface<br>area | Negative               |
| 多溴聯苯總和 / Sum of PBBs   |              |  | -   | n.d.                   |
| 一溴聯苯 / Monobromobiphenyl   |              |  | 5   | n.d.                   |
| 二溴聯苯 / Dibromobiphenyl   |              |  | 5   | n.d.                   |
| 三溴聯苯 / Tribromobiphenyl  |              | なわれての 00001 0000 とい いたい日ビ  | 5   | n.d.                   |
| 四溴聯苯 / Tetrabromobiphenyl  |              | 參考IEC 62321: 2008方法, 以氣相層析<br>儀/質譜儀檢測. / With reference to   | 5   | n.d.                   |
| 五溴聯苯 / Pentabromobiphenyl  | mg/kg        | IEC 62321: 2008 and performed by   | 5   | n.d.                   |
| 六溴聯苯 / Hexabromobiphenyl   | 4            | GC/MS.   | 5   | n.d.                   |
| 七溴聯苯 / Heptabromobiphenyl  | 4            |  | 5   | n.d.                   |
| 八溴聯苯 / Octabromobiphenyl   | 4            |  | 5   | n.d.                   |
| 九溴聯苯 / Nonabromobiphenyl   | 4            |  | 5   | n.d.                   |
| 十溴聯苯 / Decabromobiphenyl   |              |  | 5   | n.d.                   |

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### 測試報告 號碼(No.): KA/2012/C2130 日期(Date): 2013/01/04 頁數(Page): 3 of 12 **Test Report**

| 測試項目<br>(Test Items)   | 單位<br>(Unit) | 測試方法<br>(Method)  | 方法偵測<br>極限値<br>(MDL) | <b>結果</b><br>(Result)<br>NO.1 |
|--|--------------|---|----------------------|-------------------------------|
| 多溴聯苯醚總和 / Sum of PBDEs   |              |   | -                    | n.d.                          |
| 一溴聯苯醚 / Monobromodiphenyl ether  |              |   | 5                    | n.d.                          |
| 二溴聯苯醚 / Dibromodiphenyl ether  |              |   | 5                    | n.d.                          |
| 三溴聯苯醚 / Tribromodiphenyl ether   |              | l f   | 5                    | n.d.                          |
| 四溴聯苯醚 / Tetrabromodiphenyl ether   |              | 參考IEC 62321: 2008方法,以氣相層析   | 5                    | n.d.                          |
| 五溴聯苯醚 / Pentabromodiphenyl ether   | mg/kg        | 儀/質譜儀檢測. / With reference to  | 5                    | n.d.                          |
| 六溴聯苯醚 / Hexabromodiphenyl ether  |              | IEC 62321: 2008 and performed by GC/MS.   | 5                    | n.d.                          |
| 七溴聯苯醚 / Heptabromodiphenyl ether   |              | 0C/ M3.   | 5                    | n.d.                          |
| 八溴聯苯醚 / Octabromodiphenyl ether  |              |   | 5                    | n.d.                          |
| 九溴聯苯醚 / Nonabromodiphenyl ether  |              |   | 5                    | n.d.                          |
| 十溴聯苯醚 / Decabromodiphenyl ether  |              |   | 5                    | n.d.                          |
| 绨 / Antimony (Sb)  | mg/kg        | 參考US EPA 3052方法,用感應藕合電漿<br>原子發射光譜儀檢測錦含量. / With<br>reference to US EPA Method 3052 for<br>Antimony Content. Analysis was<br>performed by ICP-AES. | 2                    | n.d.                          |
| 六溴環十二烷 / Hexabromocyclododecane<br>(HBCDD) (CAS No.: 25637-99-4)           | mg/kg        | 参考US EPA 3540C: 1996方法,以氣相層<br>が質譜儀檢測. / With reference to US<br>EPA 3540C: 1996 method. Analysis was<br>performed by GC/MS.                      |                      | n.d.                          |
| 全氟辛烷磺酸 / Perfluorooctane<br>sulfonates<br>(PFOS - Acid, Metal Salt, Amide) | mg/kg        | 參考US EPA 3550C: 2007方法,以液相層<br>析/質譜儀檢測. / With reference to<br>US EPA 3550C: 2007. Analysis was<br>performed by LC/MS.                            | 10                   | n.d.                          |
| 全氟辛酸(銨) / PFOA (CAS No.: 335-67-<br>1)                                     | mg/kg        | 参考US EPA 3550C: 2007方法,以液相層<br>析/質譜儀檢測. / With reference to<br>US EPA 3550C: 2007. Analysis was<br>performed by LC/MS.                            | 10                   | n.d.                          |

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### 測試報告 號碼(No.): KA/2012/C2130 日期(Date): 2013/01/04 頁數(Page): 4 of 12 **Test Report**

| 測試項目<br>(Test Items)  | 單位<br>(Unit) | 测試方法<br>(Method)   | 方法偵測<br>極限値<br>(MDL) | 結果<br>(Result)<br>NO.1 |
|---|--------------|--|----------------------|------------------------|
| 可塑劑定量分析 / Phthalates<br>鄰苯二甲酸甲苯基丁酯 / BBP (Benzyl<br>butyl phthalate) (CAS No.: 85-68-7) | %            | 本測試參考EN 14372,以氣相層析儀/質<br>譜儀檢測之. / With reference to EN<br>14372. Analysis was performed by<br>GC/MS.  | 0.003                | n.d.                   |
| 鄰苯二甲酸二丁酯 / DBP (Dibutyl<br>phthalate) (CAS No.: 84–74–2)                                | %            | 本測試參考EN 14372,以氣相層析儀/質<br>譜儀檢測之. / With reference to EN<br>14372. Analysis was performed by<br>GC/MS.  | 0.003                | n.d.                   |
| 鄰苯二甲酸二 (2-乙基己基)酯 / DEHP<br>(Di- (2-ethylhexyl) phthalate) (CAS<br>No.: 117-81-7)        | %            | 本測試參考EN 14372, 以氣相層析儀/質<br>譜儀檢測之. / With reference to EN<br>14372. Analysis was performed by<br>GC/MS. | 0.003                | n.d.                   |
| 鄰苯二甲酸二異癸酯 / DIDP (Di-<br>isodecyl phthalate) (CAS No.: 26761-<br>40-0)                  | %            | 本測試參考EN 14372, 以氣相層析儀/質<br>譜儀檢測之. / With reference to EN<br>14372. Analysis was performed by<br>GC/MS. | 0.01                 | n.d.                   |
| 鄰苯二甲酸二異壬酯 / DINP (Di-<br>isononyl phthalate) (CAS No.: 28553-<br>12-0)                  | %            | 本測試參考EN 14372,以氣相層析儀/質<br>譜儀檢測之. / With reference to EN<br>14372. Analysis was performed by<br>GC/MS.  | 0.01                 | n.d.                   |
| 鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl<br>phthalate) (CAS No.: 117-84-0)                          | %            | 本測試參考EN 14372, 以氣相層析儀/質<br>譜儀檢測之. / With reference to EN<br>14372. Analysis was performed by<br>GC/MS. | 0.003                | n.d.                   |

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## 測試報告 號碼(No.): KA/2012/C2130 日期(Date): 2013/01/04 頁數(Page): 5 of 12

| 測試項目<br>(Test Items)                                   | 單位<br>(Unit) | 测试方法<br>(Method)<br>方法<br>(Method)  |    | 結果<br>(Result)<br>NO.1 |
|--|--------------|---|----|------------------------|
| 鹵素 / Halogen   |              |   |    |                        |
| 鹵素 (氟) / Halogen-Fluorine (F) (CAS<br>No.: 14762-94-8) | mg/kg        | 參考BS EN 14582:2007,以離子層析儀分<br>析./ With reference to BS EN   | 50 | n.d.                   |
|  |              | 14582:2007. Analysis was performed by IC.   |    |                        |
| 鹵素 (氯) / Halogen-Chlorine (Cl)                         | mg/kg        | 參考BS EN 14582:2007, 以離子層析儀分   | 50 | n.d.                   |
| (CAS No.: 22537-15-1)                                  |              | 析. / With reference to BS EN<br>14582:2007. Analysis was performed<br>by IC.                                |    |                        |
| 鹵素(溴)/ Halogen-Bromine (Br) (CAS<br>No.: 10097-32-2)   | mg/kg        | 参考BS EN 14582:2007, 以離子層析儀分<br>析. / With reference to BS EN<br>14582:2007. Analysis was performed<br>by IC. | 50 | n.d.                   |
| 鹵素(碘)/ Halogen-Iodine (I) (CAS<br>No.: 14362-44-8)     | mg/kg        | 参考BS EN 14582:2007, 以離子層析儀分<br>析. / With reference to BS EN<br>14582:2007. Analysis was performed<br>by IC. | 50 | n.d.                   |

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)
- 5. # = a. Positive means the presence of CrVI on the tested areas (Positive表示測試區域偵測到六價络)
  b. Negative means the absence of CrVI on the tested areas
  - (Negative表示測試區域未偵測到六價鉻)

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> tested areas . /  $isize \ge 0.02 mg/kg$  with 50 cm<sup>2</sup> (tested areas)

#### PFOS参考資訊(Reference Information): 持久性有機污染物 POPs - (EU) 757/2010

PFOS濃度在物質或製備中不得超過0.001%(10ppm),在半成品、成品或零部件中不得超過0.1%(1000ppm),在紡織品或塗層材料中不得 超過1µg/m<sup>2</sup>。(Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1µg/m<sup>2</sup>.)

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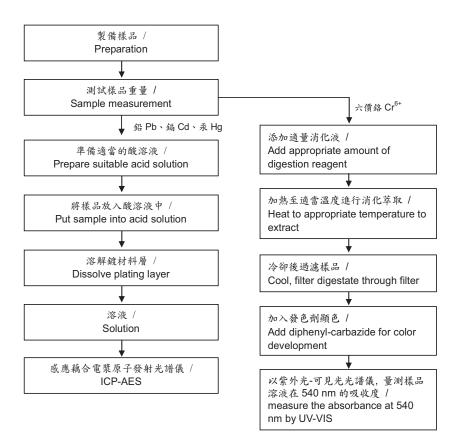
## 測試報告 Test Report<sup>號碼</sup>

號碼(No.): KA/2012/C2130 日期(Date): 2013/01/04 頁數(Page): 6 of 12

### 鍍層重金屬測試流程圖 /

#### Flow Chart of Stripping method for metal analysis

- 根據以下的流程圖之條件,樣品之外部鍍層已完全溶解已完全溶解。(六價鉻測試方 除外)/The plating layer of samples were dissolved totally by pre-conditioning metho according to below flow chart. (Cr6+ test method excluded)
- 2) 測試人員:張俊雄 / Name of the person who made measurement: Alex Chang
- 3) 測試負責人:張伯睿 / Name of the person in charge of measurement: Ray Chang



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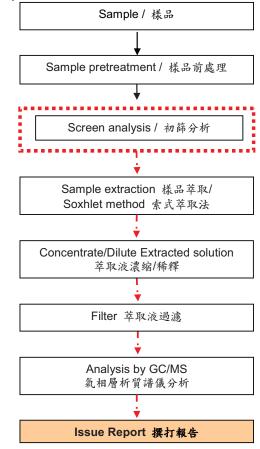
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### 測試報告 號碼(No.): KA/2012/C2130 日期(Date): 2013/01/04 頁數(Page): 7 of 12 **Test Report**

#### 多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

1) 測試人員:曹嘉琪 / Name of the person who made measurement: Anson Tsao 2)测試負責人:張伯睿 / Name of the person in charge of measurement: Ray 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 - - - ►



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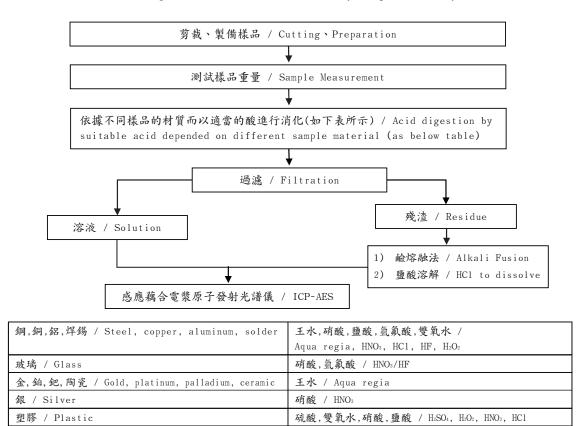
其他 / Others

### 測試報告 號碼(No.): KA/2012/C2130 日期(Date): 2013/01/04 頁數(Page): 8 of 12 **Test Report**

- 1) 根據以下的流程圖之條件,樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) 測試人員:張俊雄 / Name of the person who made measurement: Alex Chang
- 3) 測試負責人:張伯睿 / Name of the person in charge of measurement: Ray Chang

#### 元素以 ICP-AES 分析的消化流程圖

(Flow Chart of digestion for the elements analysis performed by ICP-AES)



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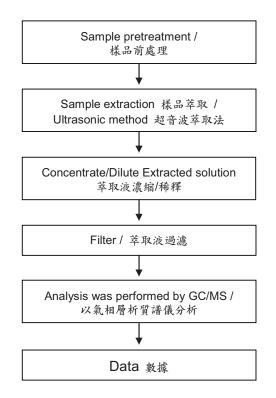
加入任何酸至完全溶解 / Any acid to total digestion



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### 六溴環十二烷分析流程圖 / HBCDD Analytical FLOW CHART

- 1) 測試人員:曹嘉琪/ Name of the person who made measurement: Anson Tsao
- 2) 測試負責人:張伯睿/ Name of the person in charge of measurement: Ray Chang



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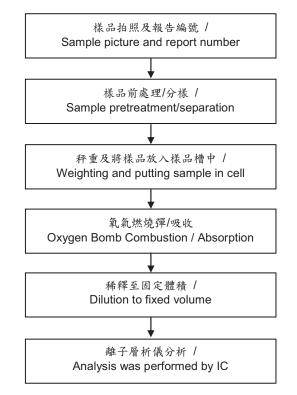
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#### 鹵素分析流程圖 / Analytical flow chart of halogen content

- 1) 測試人員:洪秀真/Name of the person who made measurement: Jean Hung
- 2) 測試負責人:張伯睿/ Name of the person in charge of measurement: Ray Chang



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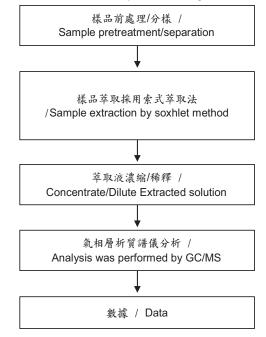


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#### 可塑劑分析流程圖 / Analytical flow chart of phthalate content

1)测試人員:曹嘉琪 / Name of the person who made measurement: Anson Tsao

2) 測試負責人:張伯睿 / Name of the person in charge of measurement: Ray Chang

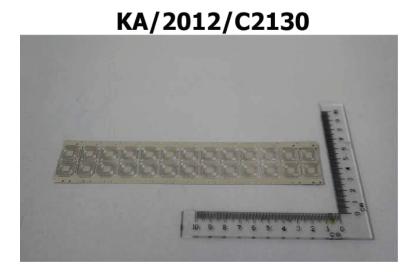


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