

## 測試報告 Test Report

號碼(No.) : KA/2009/C0907 日期(Date) : 2010/1/5 頁數(Page) : 1 of 9

國巨股份有限公司



YAGEO CORPORATION (YAGEO/ PHYCOMP/ COMPOSTAR BRAND)

231-45 台北縣新店市寶橋路233-1號3樓

3F, 233-1, BAOQIAO RD., XINDIEN, TAIPEI COUNTY 23145, TAIWAN

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

樣品名稱(Sample Description) : SURGE CHIP RESISTORS  
樣品型號(Style/Item No.) : SR2512 SERIES  
收件日期(Sample Receiving Date) : 2009/12/11  
測試期間(Testing Period) : 2009/12/11 TO 2010/1/5

=====  
測試結果(Test Results) : 請見下一頁 (Please refer to next pages).

**Ray Chang / Asst. Manager**  
**Signed for and on behalf of**  
**SGS Taiwan Limited**

# 測試報告

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### 測試結果(Test Results)

測試部位(PART NAME) NO.1 : 銀色/黑色/白色 SURGE CHIP RESISTORS (SILVER/BLACK/WHITE SURGE CHIP RESISTORS)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
鎘 / Cadmium (Cd)	mg/kg	參考IEC 62321: 2008方法, 用感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
鉛 / Lead (Pb)	mg/kg	參考IEC 62321: 2008方法, 用感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	618
汞 / Mercury (Hg)	mg/kg	參考IEC 62321: 2008方法, 用感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
六價鉻 / Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	參考IEC 62321: 2008方法, 用UV-VIS檢測. / With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
<b>多溴聯苯總和 / Sum of PBBs</b>	mg/kg	參考IEC 62321: 2008方法, 以氣相層析儀/質譜儀檢測。 / With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
一溴聯苯 / Monobromobiphenyl			5	n.d.
二溴聯苯 / Dibromobiphenyl			5	n.d.
三溴聯苯 / Tribromobiphenyl			5	n.d.
四溴聯苯 / Tetrabromobiphenyl			5	n.d.
五溴聯苯 / Pentabromobiphenyl			5	n.d.
六溴聯苯 / Hexabromobiphenyl			5	n.d.
七溴聯苯 / Heptabromobiphenyl			5	n.d.
八溴聯苯 / Octabromobiphenyl			5	n.d.
九溴聯苯 / Nonabromobiphenyl			5	n.d.
十溴聯苯 / Decabromobiphenyl			5	n.d.
<b>多溴聯苯醚總和 / Sum of PBDEs</b>	mg/kg	參考IEC 62321: 2008方法, 以氣相層析儀/質譜儀檢測。 / With reference to IEC 62321: 2008 and performed by GC/MS.	-	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			5	n.d.
四溴聯苯醚 / Tetrabromodiphenyl ether			5	n.d.
五溴聯苯醚 / Pentabromodiphenyl ether			5	n.d.
六溴聯苯醚 / Hexabromodiphenyl ether			5	n.d.
七溴聯苯醚 / Heptabromodiphenyl ether			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.

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
鋇 / Barium (Ba)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測鋇含量. / With reference to US EPA Method 3052 for Barium Content. Analysis was performed by ICP-AES.	2	172
鈷 / Cobalt (Co)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測鈷含量. / With reference to US EPA Method 3052 for Cobalt Content. Analysis was performed by ICP-AES.	2	8.03
鉻 / Chromium (Cr)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測鉻含量. / With reference to US EPA Method 3050B for Chromium Content. Analysis was performed by ICP-AES.	2	2090
銅 / Copper (Cu)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測銅含量. / With reference to US EPA Method 3052 for Copper Content. Analysis was performed by ICP-AES.	2	1110
鎂 / Magnesium (Mg)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測鎂含量. / With reference to US EPA Method 3052 for Magnesium Content. Analysis was performed by ICP-AES.	2	65.5

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
鎳 / Nickel (Ni)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測鎳含量. / With reference to US EPA Method 3052 for Nickel Content. Analysis was performed by ICP-AES.	2	15100
鈀 / Palladium (Pd)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測鈀含量. / With reference to US EPA 3052 for Palladium Content. Analysis was performed by ICP-AES.	2	5060
銀 / Silver (Ag)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測銀含量. / With reference to US EPA Method 3052 for Silver Content. Analysis was performed by ICP-AES.	2	182
錫 / Tin (Sn)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測錫含量. / With reference to US EPA 3052 for Tin Content. Analysis was performed by ICP-AES.	2	8160

### 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)

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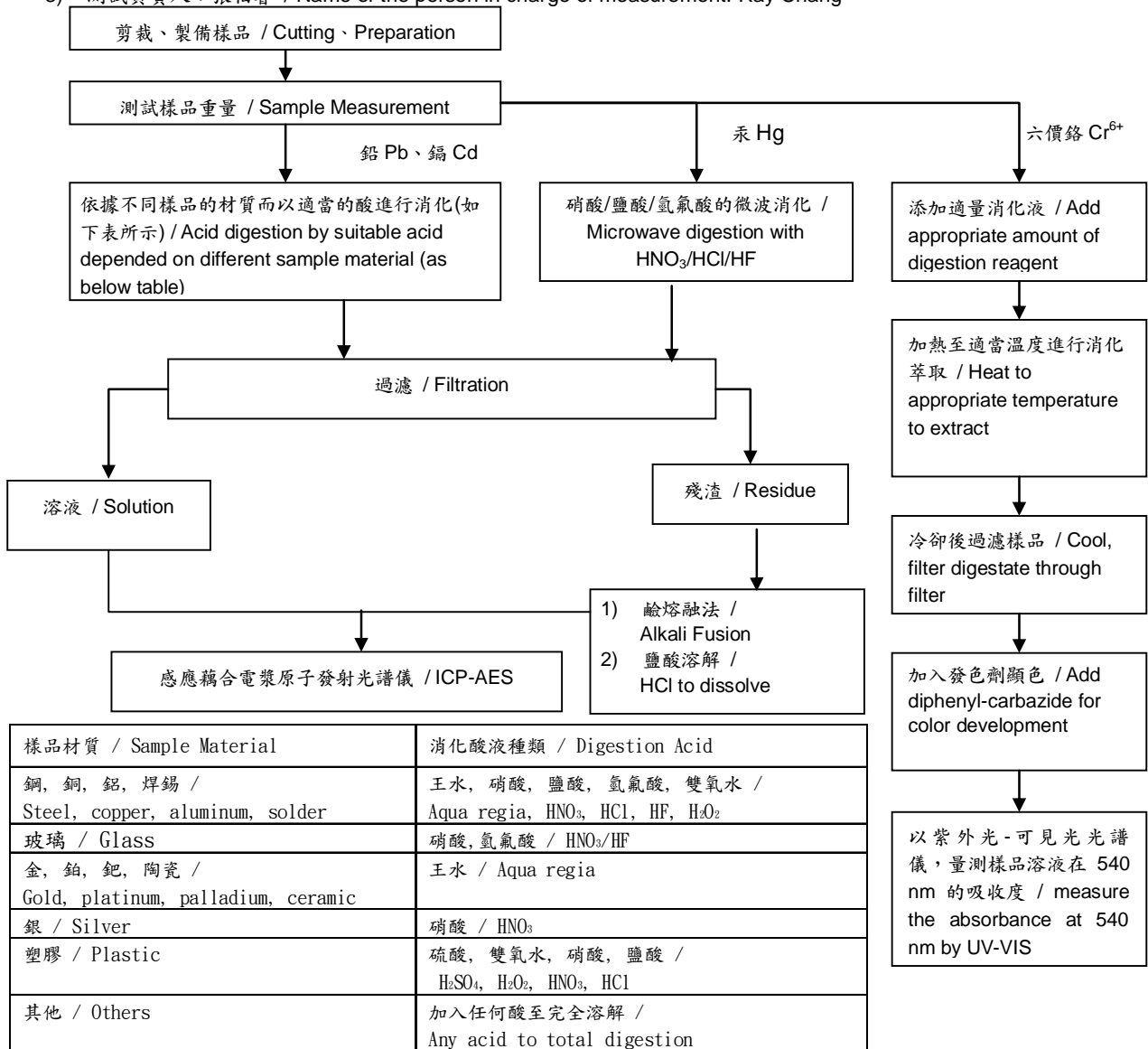
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded)
- 2) 測試人員：李宏明 / Name of the person who made measurement: Hungming Li
- 3) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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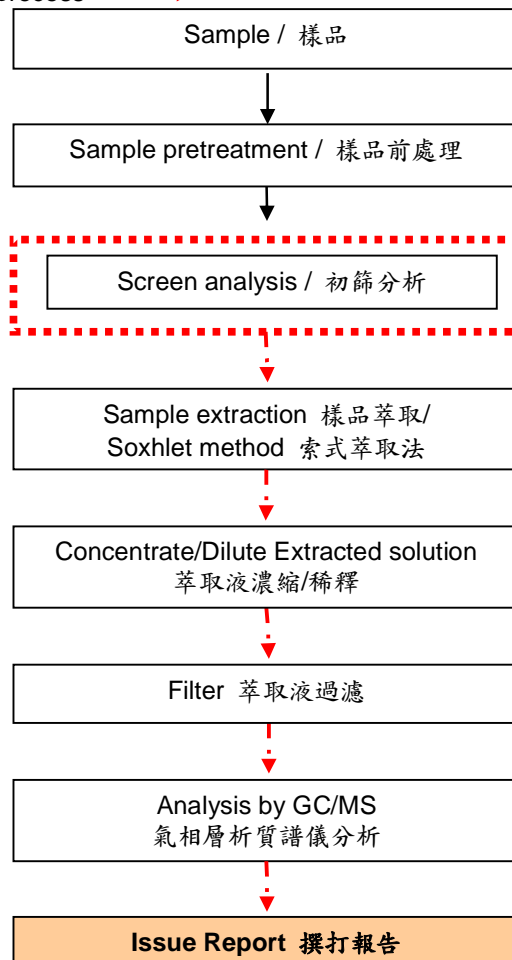
### 多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

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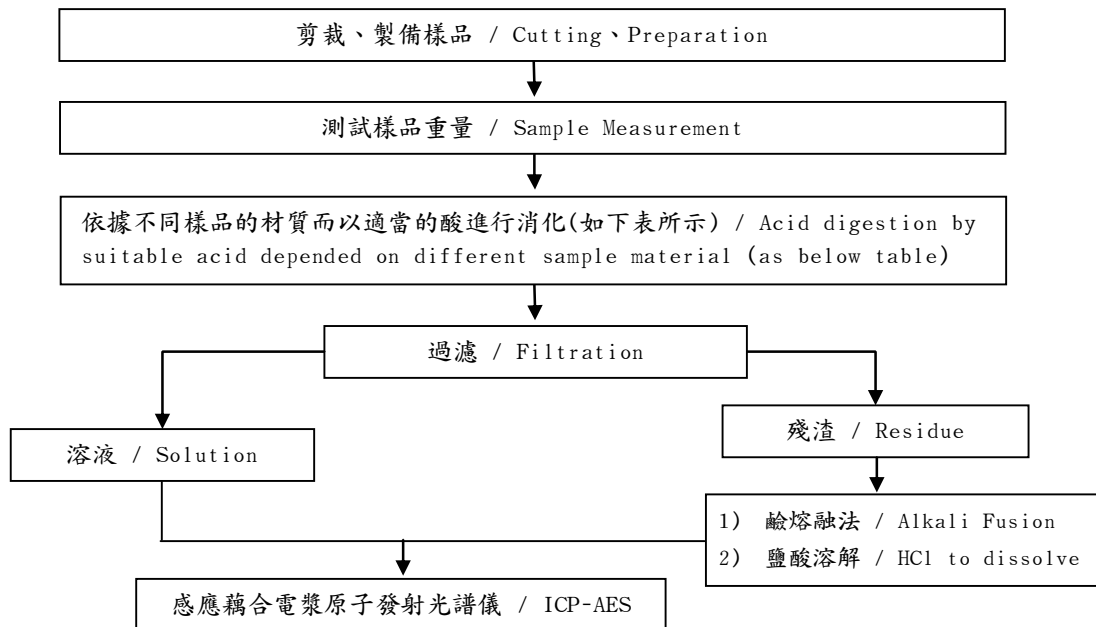
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) 測試人員：李宏明 / Name of the person who made measurement: Hungming Li
- 3) 測試負責人：張伯睿 / Name of the person in charge of measurement: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



鋼, 銅, 鋁, 焊錫 / Steel, copper, aluminum, solder	王水, 硝酸, 鹽酸, 氫氟酸, 雙氧水 / Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
玻璃 / Glass	硝酸, 氫氟酸 / HNO <sub>3</sub> /HF
金, 鉑, 鈀, 陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO <sub>3</sub>
塑膠 / Plastic	硫酸, 雙氧水, 硝酸, 鹽酸 / H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
其他 / Others	加入任何酸至完全溶解 / Any acid to total digestion

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\*\* 報告結尾(End of Report) \*\*

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