

## 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 1 of 13

## Test Report

光頤科技股份有限公司高雄分公司

VIKING TECH CORPORATION KAOHSIUNG BRANCH

高雄市前鎮區新生路248-3號

NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

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 Description) : METAL FILM PRECISION RESISTOR/METAL FILM PRECISION MELF RESISTOR/METAL FILM PRECISION HIGH VOLTAGE MELF RESISTOR  
樣品型號(Style/Item No.) : CSR/CSRV/CSRP SERIES  
收件日期(Sample Receiving Date) : 2017/12/28  
測試期間(Testing Period) : 2017/12/28 TO 2018/01/04  
送樣廠商(Sample Submitted By) : 光頤科技股份有限公司高雄分公司 (VIKING TECH CORPORATION KAOHSIUNG BRANCH)

=====

### 測試需求(Test Requested) :

(1) 依據客戶指定, 檢測鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP. (As specified by client, to test Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample.)

(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) : 請見下一頁 (Please refer to next pages).

*Ray Chang*

報告簽署人/Ray Chang Ph.D./Manager-Tech  
Signed for and on behalf of  
SGS Taiwan Limited



# 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 2 of 13

## Test Report

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### 測試結果(Test Results)

測試部位(PART NAME)No.1 : 整體混測 (MIXED ALL PARTS)

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 62321-5:2013方法, 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.	2	n.d.
鉛 / Lead (Pb)	mg/kg	參考IEC 62321-5:2013方法, 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.	2	10.4
汞 / Mercury (Hg)	mg/kg	參考IEC 62321-4:2013方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-4:2013 and performed by ICP-AES.	2	n.d.
六價鉻 / Hexavalent Chromium Cr(VI)	mg/kg	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.	8	n.d.

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# 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 3 of 13

## Test Report

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VIKING TECH CORPORATION KAOHSIUNG BRANCH

高雄市前鎮區新生路248-3號

NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

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
多溴聯苯總和 / Sum of PBBs	mg/kg	參考IEC 62321-6: 2015方法, 以氣相層析/質譜儀檢測. / With reference to IEC 62321-6: 2015 and performed by GC/MS.	-	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		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.
多溴聯苯醚總和 / Sum of PBDEs	mg/kg	參考IEC 62321-6: 2015方法, 以氣相層析/質譜儀檢測. / With reference to IEC 62321-6: 2015 and performed by GC/MS.	-	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		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.	

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# 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 4 of 13

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VIKING TECH CORPORATION KAOHSIUNG BRANCH

高雄市前鎮區新生路248-3號

NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

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
鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	mg/kg	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.	50	n.d.
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg		50	n.d.
鄰苯二甲酸丁苄酯 / BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)	mg/kg		50	n.d.
鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg		50	n.d.
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	mg/kg		50	n.d.
鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0; 68515-48-0)	mg/kg		50	n.d.
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0; 68515-49-1)	mg/kg		50	n.d.

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# 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 5 of 13

## Test Report

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VIKING TECH CORPORATION KAOHSIUNG BRANCH

高雄市前鎮區新生路248-3號

NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

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
六溴環十二烷及所有主要被辨別出的異構物 / Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ -HBCDD, $\beta$ -HBCDD, $\gamma$ -HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	參考IEC 62321: 2008方法, 以氣相層析/質譜儀檢測。 / With reference to IEC 62321: 2008 method. Analysis was performed by GC/MS.	5	n.d.
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS)	mg/kg	參考US EPA 3550C: 2007方法, 以液相層析/質譜儀檢測。 / With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.
全氟辛酸(銨) / PFOA (CAS No.: 335-67-1)	mg/kg		10	n.d.
<b>鹵素 / Halogen</b>				
鹵素(氟) / Halogen-Fluorine (F) (CAS No.: 014762-94-8)	mg/kg	參考BS EN 14582:2016, 以離子層析儀分析。 / With reference to BS EN 14582:2016. Analysis was performed by IC.	50	n.d.
鹵素(氯) / Halogen-Chlorine (Cl) (CAS No.: 022537-15-1)	mg/kg		50	71.7
鹵素(溴) / Halogen-Bromine (Br) (CAS No.: 010097-32-2)	mg/kg		50	n.d.
鹵素(碘) / Halogen-Iodine (I) (CAS No.: 014362-44-8)	mg/kg		50	n.d.

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## 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 6 of 13

## Test Report

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NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

### 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. 樣品的測試是基於申請人要求混合測試，報告中的混合測試結果不代表其中個別單一材質的含量。  
(The samples was/were analyzed on behalf of the applicant as mixing sample in one testing.  
The above results was/were only given as the informality value.)

### PFOS參考資訊(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>.)

全氟辛烷磺酸指全氟辛烷磺酸和它的衍生物包括全氟辛烷磺酸，全氟辛基磺醯胺，N-甲基全氟辛烷磺醯胺，N-乙基全氟辛烷磺醯胺，N-甲基全氟辛基磺醯基氨基乙醇，N-乙基全氟辛基磺醯基氨基乙醇。(PFOS refer to Perfluorooctanesulfonic acid and its derivatives including Perfluorooctanesulfonic acid, Perfluorooctane sulfonamide, N-Methylperfluorooctane sulfonamide, N-Ethylperfluorooctane sulfonamide, N-Methylperfluorooctane sulfonamidoethanol and N-Ethylperfluorooctane sulfonamidoethanol.)

## 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 7 of 13

## Test Report

光頤科技股份有限公司高雄分公司

VIKING TECH CORPORATION KAOHSIUNG BRANCH

高雄市前鎮區新生路248-3號

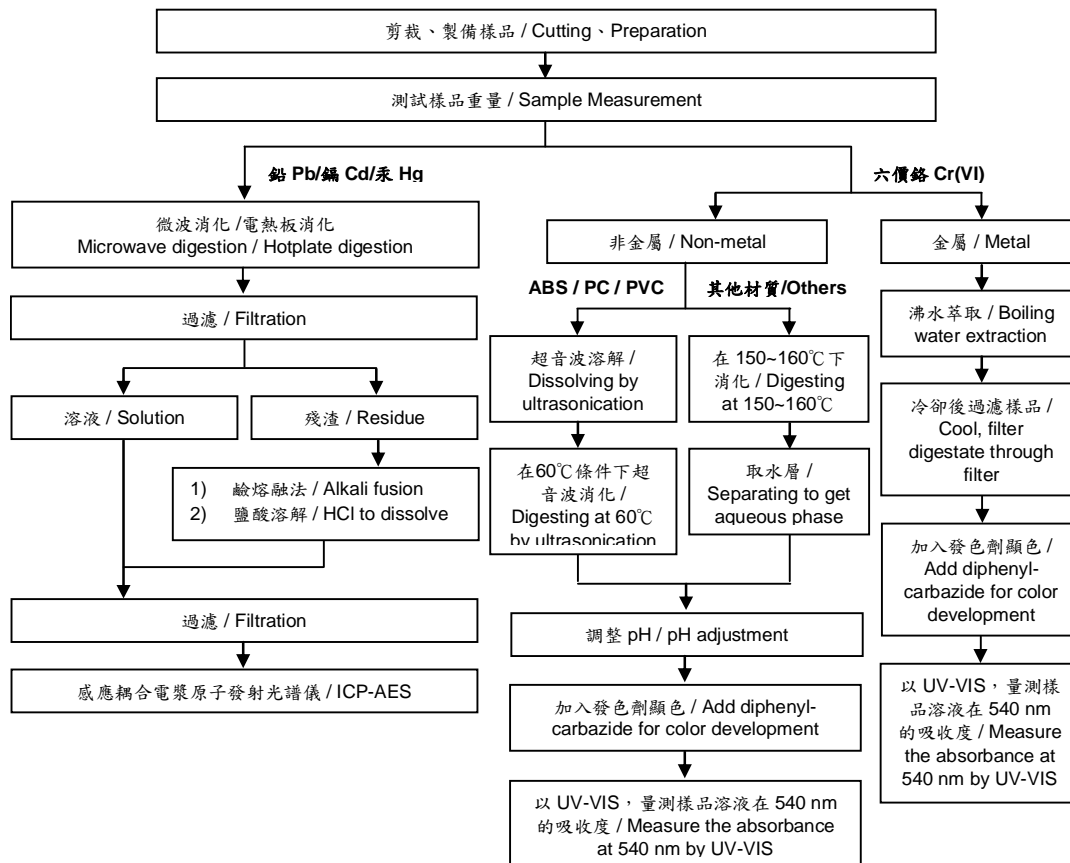
NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

### 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)

- 測試人員：劉俊宏 / Technician : Jony Liu
- 測試負責人：張伯睿 / Supervisor: Ray Chang



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## 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 8 of 13

## Test Report

光頡科技股份有限公司高雄分公司

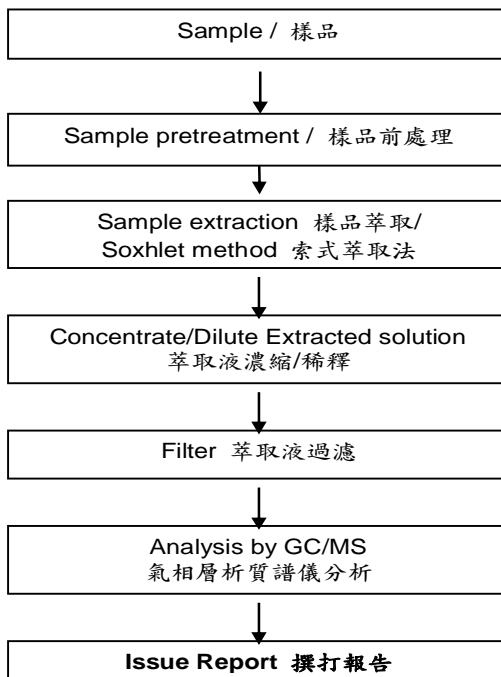
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### 多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

- 1) 測試人員：陳威錚 / Name of the person who made measurement: Dorothy Chen  
 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang





## 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 9 of 13

## Test Report

光頡科技股份有限公司高雄分公司

VIKING TECH CORPORATION KAOHSIUNG BRANCH

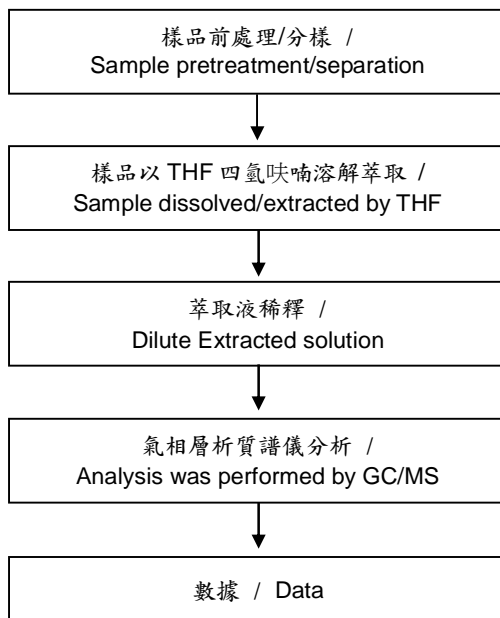
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### 可塑劑分析流程圖 / Analytical flow chart of phthalate content

- 測試人員：陳威錚 / Name of the person who made measurement: Dorothy Chen
- 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang

#### 【測試方法/Test method: IEC 62321-8】



## 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 10 of 13

## Test Report

光頤科技股份有限公司高雄分公司

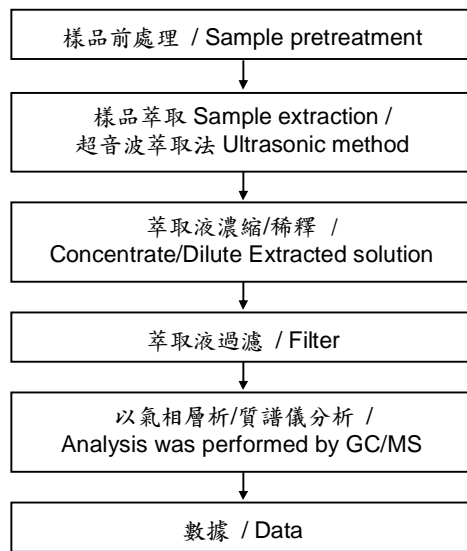
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NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

### 六溴環十二烷分析流程圖 / HBCDD analytical flow chart

- 1) 測試人員：陳威錚 / Name of the person who made measurement: Dorothy Chen
- 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



## 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 11 of 13

## Test Report

光頤科技股份有限公司高雄分公司

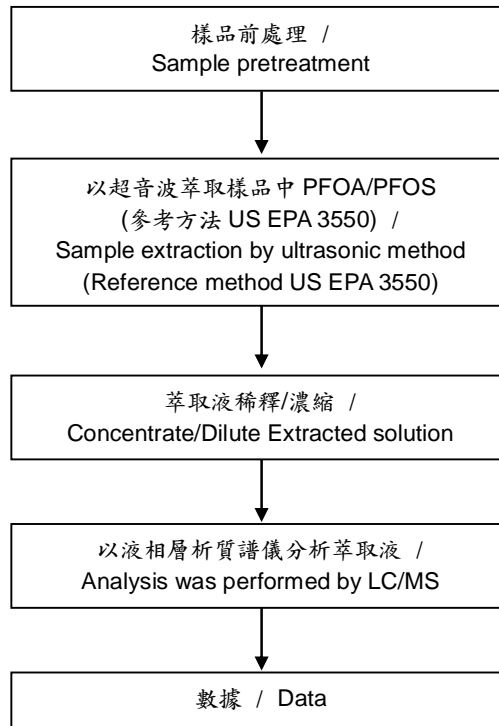
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### 全氟辛酸(銨)/全氟辛酸磺酸分析流程圖 / Analytical flow chart of PFOA/PFOS content

- 1) 測試人員：黃璟璵 / Name of the person who made measurement: Ginny Huang
- 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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## 試驗報告

號碼(No.) : KA/2017/C2408 日期(Date) : 2018/01/04

頁數 (Page) : 12 of 13

## Test Report

光頡科技股份有限公司高雄分公司

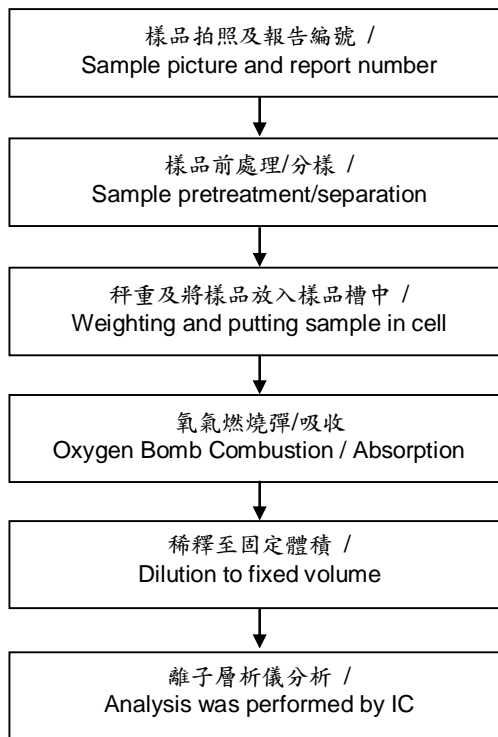
VIKING TECH CORPORATION KAOHSIUNG BRANCH

高雄市前鎮區新生路248-3號

NO. 284-3, SIN-SHENG RD., CIAN-JHEN DIST., KAOHSIUNG, 806, TAIWAN

### 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



## 試驗報告

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光頤科技股份有限公司高雄分公司

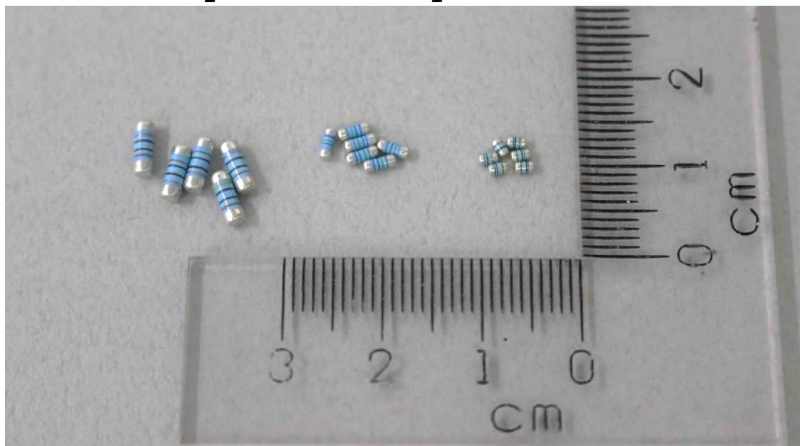
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\* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。 \*  
(The tested sample / part is marked by an arrow if it's shown on the photo.)

# KA/2017/C2408



\*\* 報告結尾 (End of Report) \*\*