



SYNTON-TECH CORPORATION

CHIP NETWORK

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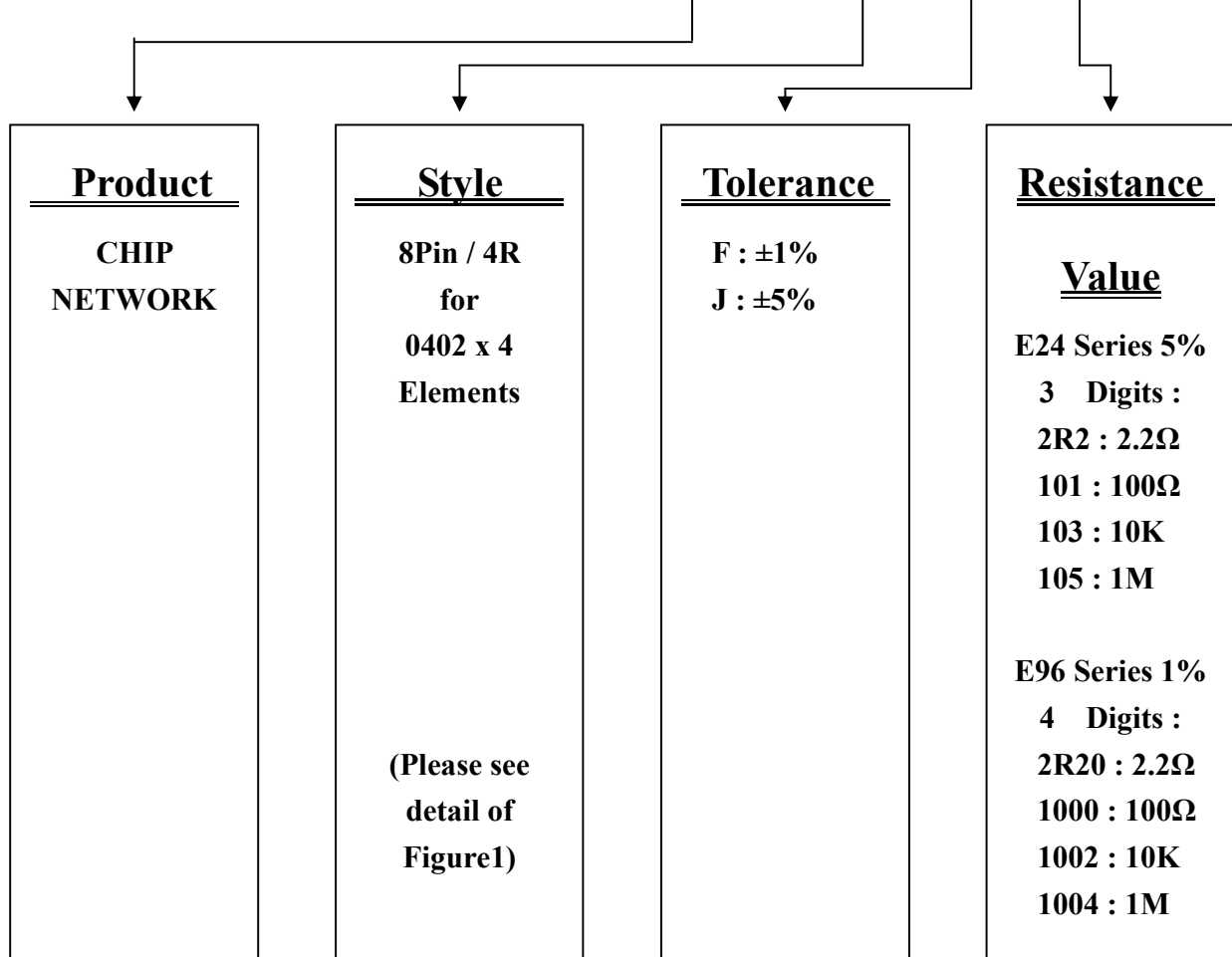
Date: 2012.11.23

1.SUBJECT : This specification applies on the chip resistors network
was made by SYNTON-TECH Corporation.

2.PART NUMBER : Part number of the chip resistor is identified
by the No. of Resistors, tolerance, resistance value .

Example : DESCRIPTION : YC12 8P4R 5% 10K

SYNTON CODE : YC12 4R J 103



APPROVED	CHECKED	DESIGNED	REMARK	DOCUMENT NO.
Carol	May	Chen	RE:SGS	0201010093



3.ELECTRICAL CHARACTERISTICS

STYLE	YC124
POWER	1/16W (0402)
Maximum Working Voltage	50V
Maximum Overload Voltage	100V
Dielectric Withstand Voltage	100V
No. of resistors	8P4R
Resistance Range	10Ω ~ 1MΩ
Operating Temp. Range	-55 ~ +125
Temperature Coefficient (± PPM /)	±200PPM/

Figure 1

4. POWER RATING

(1)Power Derating : The rated power at the temperature in excess of 70 shall be derated in accordance with figure3

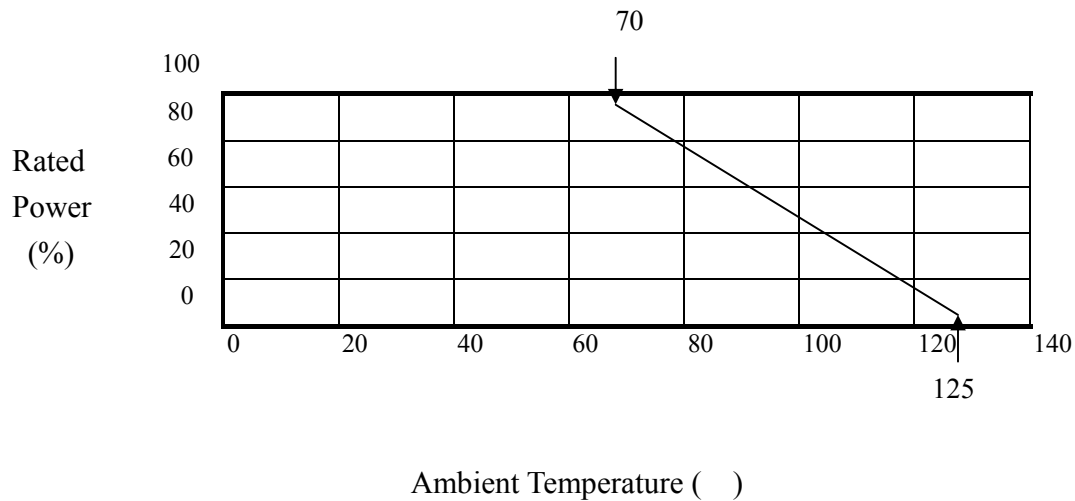


Figure2



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(2)Rated Voltage : The DC or AC(rms) continuous working voltage corresponding to the rated power is determined by the following formula:

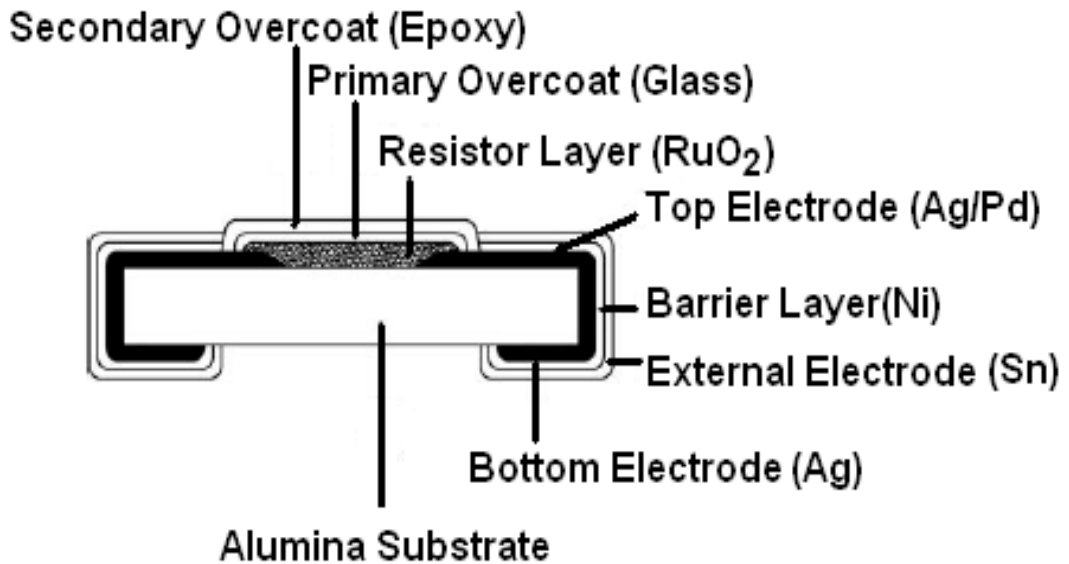
$$V = \sqrt{R \times P}$$

Where V : Continuous rated DC or AC (rms) working voltage (v)

P : Rated power (w)

R : Resistance value ()

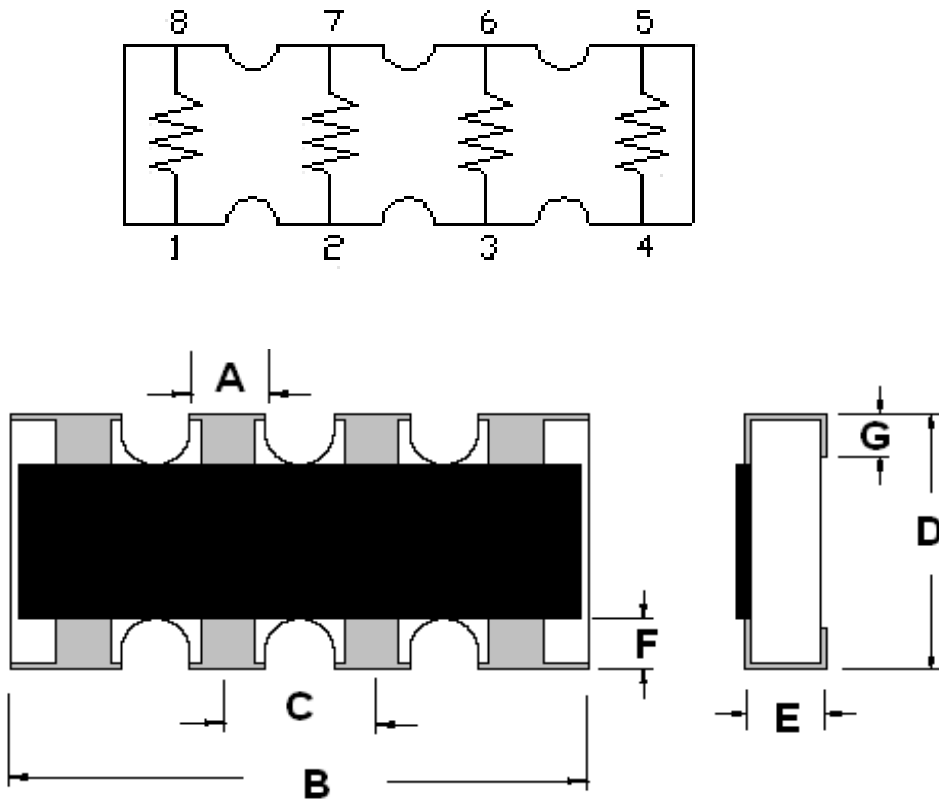
5.CONSTRUCTION AND MATERIALS





5.1 DIMENSIONS
YC124(8Pin/4R)

R1=R2=R3=R4



單位 m/m

TYPE	NUMBER OF RESISTORS	A	B	C	D	E	F	G
YC124	8P/4R	0.30±0.15	2.0±0.2	0.5±0.05	1.0±0.2	0.45±0.1	0.2±0.15	0.3±0.15

Figure3



6. CHARACTERISTICS

(1) Temperature Coefficient of Resistance(T.C.R.)

Test Method : Measure resistance at +25 or specified room temperature as R1, then measure at -55 and +125 respectively as R2.

Determine the temperature coefficient of Resistance from the following formula.

$$\text{T. C. R.} = \frac{\text{R2} - \text{R1}}{\text{R1} (\text{t2} - \text{t1})} \times 10^6 \text{ (ppm /)}$$

Where t1 = +25 or specified room temperature
t2 = -55 or +125 ±3

(2) Thermal Shock

Test Method : -55 for 2 minutes and +125 for 2 minutes as One cycle, after 5 cycles the specimen shall be Stabilized at room temperature for one hour Minimum and then measure the R/R(%).

Acceptance Standard : ±(1.0%+0.05)

(3) Low Temperature Operation

Test Method :Place the specimen in a test chamber maintained at -55 . After one hour stabilization at this temperature, full rated working voltage shall be applied for 45 minutes. 15 minutes after remove the voltage, the specimen shall be removed from the chamber and stabilized at room temperature for 24 hours minimum. Measure R/R(%).

Acceptance Standard : ±(1.0%+0.05) No mechanical damage.

**(4) Short Time Overload**

Test Method : Apply 2.5 times of rated voltage but not exceeding the maximum overload voltage 1 for 5 seconds. Have the specimen stabilized at room temperature for 30 minutes minimum. Measure the R/R(%).

Acceptance Standard : $\pm(2.0\%+0.05)$) No evidence of mechanical damage.

(5) High Temperature Exposure

Test Method : Place the specimen in an oven at 125 ± 5 for 100 hours. Remove the specimen from the oven and stabilize at room temperature for one hour minimum. Measure the R/R(%).

Acceptance Standard : $\pm(2.0\%+0.1)$)

(6) Resistance to Soldering Heat

Test Method : Immerse the specimen in the solder pot at 260 ± 5 for 10 ± 1 seconds. Have the specimen stabilized at room temperature for 30 minutes minimum. Measure the R/R(%).

Acceptance Standard : $\pm(1.0\%+0.05)$)

(7) Moisture Resistance

Test Method : Place the specimen in a test chamber at 40 ± 2 and 90~95% relative humidity. Apply the rated voltage to the specimen at the 1.5 hours on and 0.5 hour off cycle. The total length of test is 1000 +48/-0 Hrs. After the test, have the specimen stabilized at room temperature for one hour minimum. Measure the R/R(%).

Acceptance Standard : $\pm(3.0\%+0.1)$)

**(8) Load Life**

Test Method : Place the specimen in the oven at 70 ± 2 . Apply the rated voltage to the specimen at 1.5 hours on and 0.5 hour off cycle. The total length of test is 1000 +48/-0 hours. After the test have the specimen stabilized at room temperature for one hour minimum and measure the R/R(%).

Acceptance Standard : $\pm(3.0\%+0.1)$)

(9) Solderability

Test Method : Immerse the specimen in the solder pot at 245 ± 5 for 5 seconds

Acceptance Standard : At least 95% solder coverage on the termination

(10) Bending Strength

Test Method : Mount the specimen on a test board . Slowly apply the force till the board is bend at $5+0.2$ mm for 5 ± 1 seconds, and measure the R/R(%) at this position.

Acceptance Standard : $\pm(1.0\%+0.05)$)

(11) Insulation Resistance

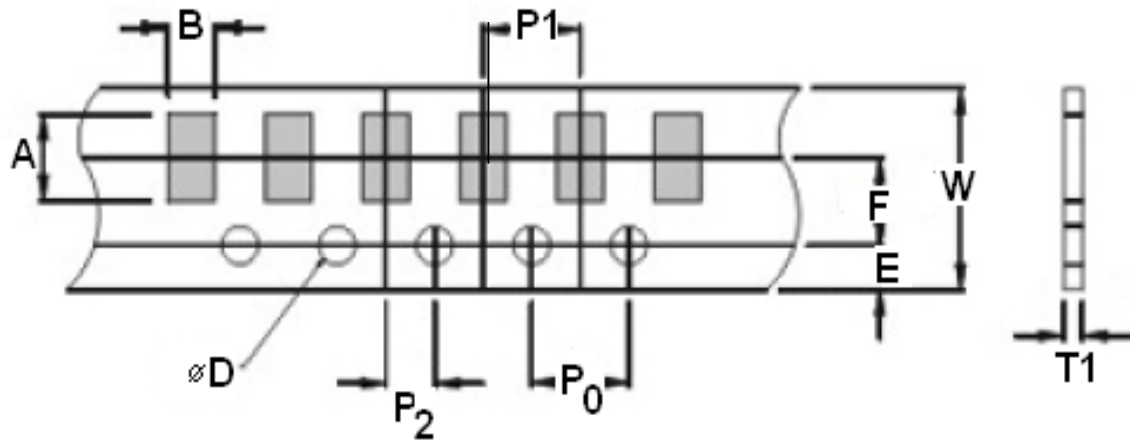
Test Method : Place the specimen in the jig and apply a 500Vdc voltage for one minute. Measure the insulation resistance.

Acceptance Standard : 1,000M minimum.



7. TAPING SPECIFICATIONS

(1) Paper Taping

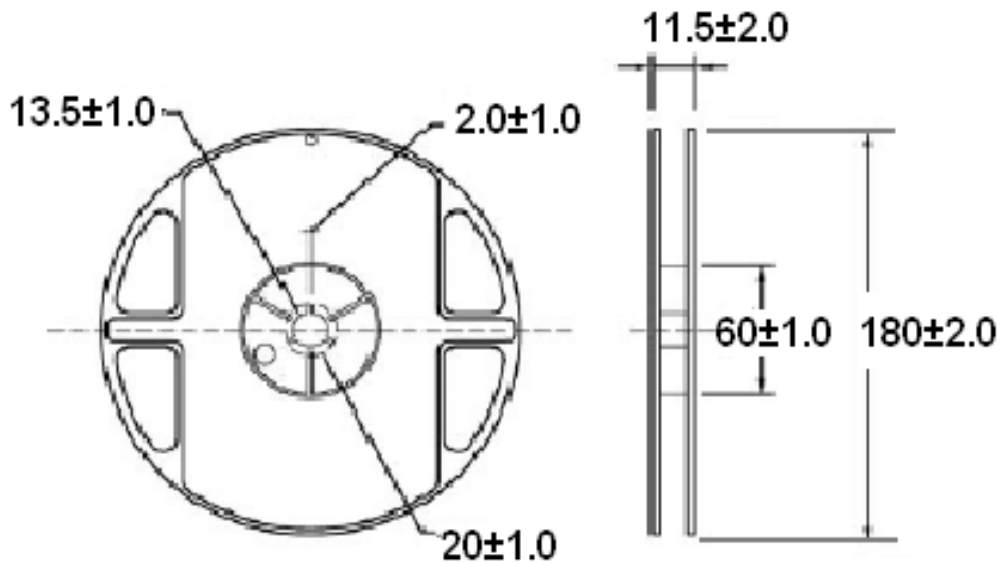


Unit:(mm)

TYPE	NUMBER OF RESISTORS	A	B	W	E	F	T1	P ₀	P ₁ , P ₂	øD
YC124	8P/4R	1.2±0.1	2.2±0.1	8.0±0.2	1.75±0.1	3.5±0.05	0.83±0.05	4.0±0.1	2.0±0.05	1.5±0.1

Figure4

(2) Taping Reel





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Test Report

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欣統股份有限公司
SYNTECH CORPORATION
新北市汐止區新台五路一段79號16樓之3/廣東省東莞市大朗鎮水口管理區
16F-3, NO.79, FAR EAST WORLD CENTER SEC.1, HSIN TAI WU ROAD, HSI-CHIH DISTRICT, NEW
TAIPEI CITY ,TAIWAN, R.O.C./ (DONG GUAN PLANL)SHUI KOU INDUSTRIAL ZONE DA LANG, DONG
GUAN, GUANG DONG, CHINA

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) : LEAD FREE THICK FILM CHIP RESISTORS & CHIP ARRAYS
樣品型號(Style/Item No.) : LEAD FREE THICK FILM CHIP RESISTORS & CHIP ARRAYS
收件日期(Sample Receiving Date) : 2012/03/02
測試期間(Testing Period) : 2012/03/02 TO 2012/03/07

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

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



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欣統股份有限公司

SYNTON-TECH CORPORATION

新北市汐止區新台五路一段79號16樓之3/廣東省東莞市大朗鎮水口管理區

16F-3, NO.79, FAR EAST WORLD CENTER SEC.1, HSIN TAI WU ROAD, HSI-CHIH DISTRICT, NEW TAIPEI CITY, TAIWAN, R.O.C./ (DONG GUAN PLAN) SHUI KOU INDUSTRIAL ZONE DA LANG, DONG GUAN, GUANG DONG, CHINA

測試結果(Test Results)

測試部位(PART NAME) NO.1

銀/黑/白色 LEAD FREE THICK FILM CHIP RESISTORS & CHIP ARRAYS
(SILVER/BLACK/WHITE LEAD FREE THICK FILM CHIP RESISTORS & CHIP ARRAYS)

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	209
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.
多溴聯苯總和 / Sum of PBBs	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.		

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SYNTECH CORPORATION
新北市汐止區新台五路一段79號16樓之3/廣東省東莞市大朗鎮水口管理區
16F-3, NO.79, FAR EAST WORLD CENTER SEC.1, HSIN TAI WU ROAD, HSI-CHIH DISTRICT, NEW
TAIPEI CITY, TAIWAN, R.O.C. / (DONG GUAN PLANL) SHUI KOU INDUSTRIAL ZONE DA LANG, DONG
GUAN, GUANG DONG, CHINA

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
多溴聯苯醚總和 / Sum of PBDES	ng/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 / Nona bromodiphenyl ether			5	n.d.
十溴聯苯醚 / Decabromodiphenyl ether	5	n.d.		
鹵素 / Halogen				
鹵素 (氟) / Halogen-Fluorine (F) (CAS No.: 14762-94-8)	ng/kg	參考BS EN 14582:2007, 以離子層析儀 分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (氯) / Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)	ng/kg	參考BS EN 14582:2007, 以離子層析儀 分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (溴) / Halogen-Bromine (Br) (CAS No.: 10097-32-2)	ng/kg	參考BS EN 14582:2007, 以離子層析儀 分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8)	ng/kg	參考BS EN 14582:2007, 以離子層析儀 分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
三氧化二銻 / Antimony trioxide (Sb2O3)*** (CAS No.: 1309-64-4)	ng/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測銻含量。 / With reference to US EPA Method 3052 for Antimony Content. Analysis was performed by ICP-AES.	-	n.d.

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新北市汐止區新台五路一段79號16樓之3/廣東省東莞市大朗鎮水口管理區
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GUAN, GUANG DONG, CHINA

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法值測 極限值 (MDL)	結果 (Result) NO.1
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS - Acid, Metal Salt, Amide)	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛烷磺酸含量。 / With reference to US EPA 3540C: 1996 method for PFOS Content. Analysis was performed by LC/MS.	10	n.d.
全氟辛酸(銨) / PFOA (CAS No.: 335-67-1)	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛酸(銨)含量。 / With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.
銻 / Antimony (Sb)	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銻含量。 / With reference to US EPA Method 3052 for Antimony Content. Analysis was performed by ICP-AES.	2	n.d.
紅磷 / Red phosphorus	**	本測試以熱裂解儀分析。 / Analysis was performed by Pyrolyzer-GC/MS.	-	Negative
可塑劑定量分析 / Phthalates 鄰苯二甲酸甲苄基丁酯 / BBP (Benzyl butyl phthalate) (CAS No.: 85-68-7)	%	本測試參考EN 14372, 以氣相層析儀/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	%	本測試參考EN 14372, 以氣相層析儀/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.

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SYNTON-TECH CORPORATION

新北市汐止區新台五路一段79號16樓之3/廣東省東莞市大朗鎮水口管理區

16F-3, NO.79, FAR EAST WORLD CENTER SEC.1, HSIN TAI WU ROAD, HSI-CHIH DISTRICT, NEW TAIPEI CITY, TAIWAN, R.O.C./ (DONG GUAN PLAN.) SHUI KOU INDUSTRIAL ZONE DA LANG, DONG GUAN, GUANG DONG, CHINA

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法值測 極限值 (MDL)	結果 (Result) NO. I
鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	%	本測試參考EN 14372, 以氣相層析儀/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0)	%	本測試參考EN 14372, 以氣相層析儀/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.
鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0)	%	本測試參考EN 14372, 以氣相層析儀/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	%	本測試參考EN 14372, 以氣相層析儀/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.

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SGS Taiwan Ltd.
台灣檢驗科技股份有限公司

No.61, Kai-Fa Road, Nansh Export Processing Zone, Keelung, Taiwan /
t (886-7) 301-2121

f (886-7) 301-0867

www.sgs.tw

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欣統股份有限公司

SYNTON-TECH CORPORATION

新北市沙止區新台五路一段79號16樓之3/廣東省東莞市大朗鎮水口管理區

16F-3, NO.79, FAR EAST WORLD CENTER SEC.1, HSIN TAI WU ROAD, HSI-CHIH DISTRICT, NEW TAIPEI CITY, TAIWAN, R.O.C./ (DONG GUAN PLAN.) SHUI KOU INDUSTRIAL ZONE DA LANG, DONG GUAN, GUANG DONG, CHINA

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. ** = Qualitative analysis (No Unit) 定性分析(無單位)
6. ***: 該物質是由"三丁基錫", "三苯基錫"或各別元素(例如: 錫、鍍、矽、鎘或磷)之測試結果計算得知, 其MDL是針對"三丁基錫", "三苯基錫"或元素(例如: 錫、鍍、矽、鎘或磷)之評估。(The substance was calculated by the test results of Tributyl Tin, Triphenyl Tin or element (Ex. Antimony, Beryllium, Silicon, Zinc or Phosphorus respectively). The MDL is evaluated for Tributyl Tin, Triphenyl Tin or element (Ex. Antimony, Beryllium, Silicon, Zinc or Phosphorus respectively).)
7. 紅磷測試由SGS其他實驗室執行 (The Red phosphorus test was subcontracted to other SGS Laboratory.)
8. 此為2012/3/7所發行KA/2012/30142之加發報告, 原始資料請參考KA/2012/30142. (This is the additional test report of KA/2012/30142 which was issued on 2012/3/7. Please refer to KA/2012/30142 for original information.)

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/m²。(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/m².)

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Test Report

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SYNTECH CORPORATION
新北市汐止區新台五路一段79號16樓之3/廣東省東莞市大朗鎮水口管理區
16F-3, NO.79, FAR EAST WORLD CENTER SEC.1, HSIN TAI WU ROAD, HSI-CHIH DISTRICT, NEW
TAIPEI CITY, TAIWAN, R.O.C. / (DONG GUAN PLAN) SHUI KOU INDUSTRIAL ZONE DA LANG, DONG
GUAN, GUANG DONG, CHINA

- 根據以下的流程图之條件，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. (Cr⁶⁺ test method excluded)
- 測試人員: 張俊偉 / Name of the person who made measurement: Alex Chang
- 測試負責人: 張怡奇 / Name of the person in charge of measurement: Ray Chang



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新北市汐止區新台五路一段79號16樓之3/廣東省東莞市大朗鎮水口管理區
16F-3, NO.79, FAR EAST WORLD CENTER SEC.1, HSIN TAI WU ROAD, HSI-CHIH DISTRICT, NEW
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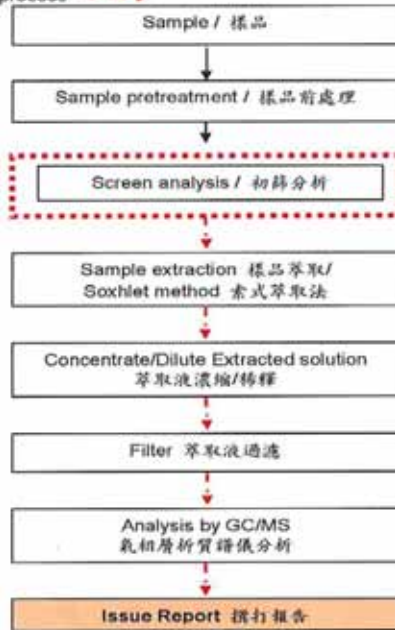
多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

- 1) 測試人員: 曾嘉琪 / Name of the person who made measurement: Anson Tsao
- 2) 測試負責人: 張伯容 / 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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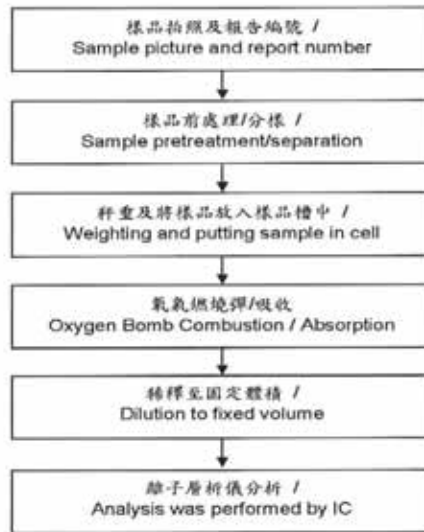
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16F-3, NO.79, FAR EAST WORLD CENTER SEC.1, HSI-CHIH DISTRICT, NEW
TAIPEI CITY, TAIWAN, R.O.C. / (DONG GUAN PLAN) SHUI KOU INDUSTRIAL ZONE DA LANG, DONG
GUAN, GUANG DONG, CHINA

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: 張伯崧 / Name of the person in charge of measurement: Ray Chang



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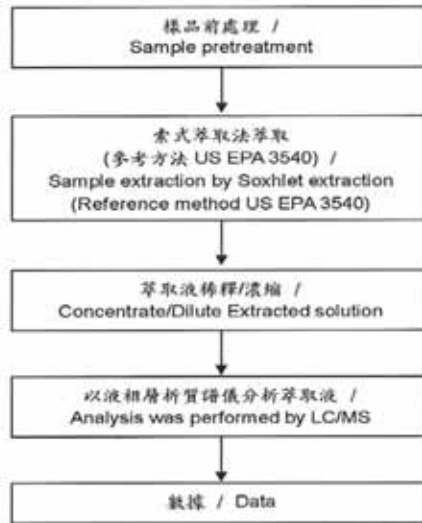
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GUAN, GUANG DONG, CHINA

全氟辛酸(銨)/ 全氟辛烷磺酸分析流程圖 /

Analytical flow chart of PFOA/PFOS content

- 1) 測試人員：曾嘉瑛 / Name of the person who made measurement: Anson Tsao
2) 測試負責人：張衍春 / Name of the person in charge of measurement: Ray Chang



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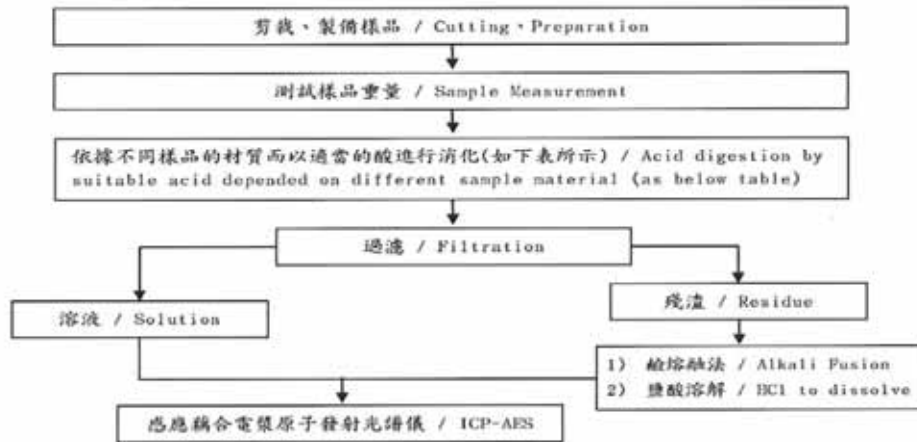
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GUAN, GUANG DONG, CHINA

- 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：張俊維 / 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)



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

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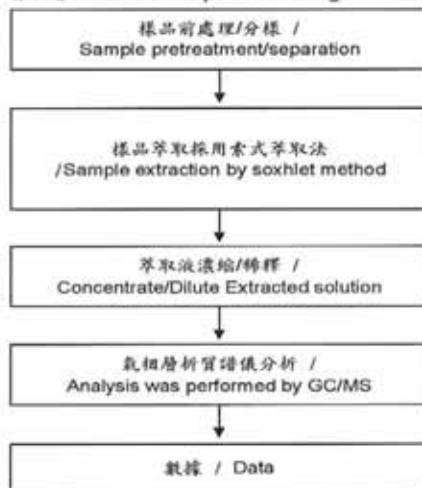
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16F-3, NO.79, FAR EAST WORLD CENTER SEC.1, HSIN TAI WU ROAD, HSI-CHIH DISTRICT, NEW
TAIPEI CITY, TAIWAN, R.O.C./ (DONG GUAN PLAN) SHUI KOU INDUSTRIAL ZONE DA LANG, DONG
GUAN, GUANG DONG, CHINA

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

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



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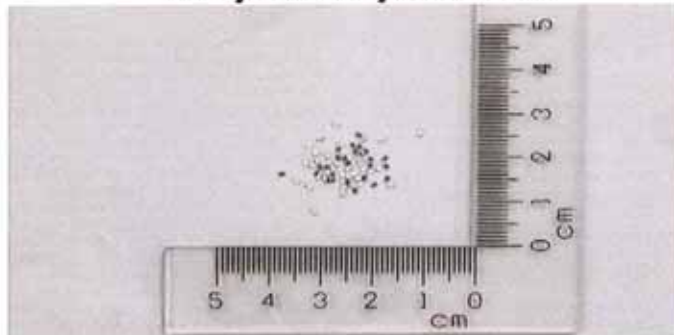
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新北市汐止區新台五路一段79號16樓之3/廣東省東莞市大朗鎮水口管理區
16F-3, NO.79, FAR EAST WORLD CENTER SEC.1, HSIN TAI WU ROAD, HSI-CHIH DISTRICT, NEW
TAIPEI CITY ,TAIWAN, R.O.C. / (DONG GUAN PLAN) SHUI KOU INDUSTRIAL ZONE DA LANG, DONG
GUAN, GUANG DONG, CHINA

* 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/2012/30142



**** 報告結尾(End of Report) ****

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SGS Taiwan Ltd.
台灣檢驗科技股份有限公司

No.61, Kai -Fa Road, Nanzih Export Processing Zone, Keelung, Taiwan / 高雄市楠梓加工出口區開發路61號
TWA 7569128

t (886-7) 301-2121

f (886-7) 301-0887

www.sgs.tw

Member of SGS Group

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