

## RATED CURRENT FUSIBLE RESISTOR RFA TYPE

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- **1. SUBJECT**: This specification applies on the rated current fusible resistor was made by **SYNTON-TECH** Corporation •
- **2. PART NUMBER**: Part number of the rated current fusible resistor is identified by the type, rated power, tolerance, ampere •

Example: DESCRIPTION: RFA 1/4W 5% 0.375A

SYNTON CODE: RFA 025 J A375 T

Type

RATED
CURRENT
FUSIBLE
RESISTOR

(RFA TYPE)

#### **Rated Power**

025: 1/4W 050: 1/2W

#### **Tolerance**

J: ±5%

#### **Ampere**

4 Digits: A375: 0.375A

A500: 0.5A

A750: 0.75A 1A00: 1A

1A50 : 1.5A

2A00 : 2A

2A25: 2.25A

2A50: 2.5A

3A00:3A

3A50: 3.5A

4A00:4A 5A00:5A

7A00 : 7A

### **Package**

T: Tape Box 52mm

(Please see detail of Figure5)

APPROVED	CHECKED	DESIGNED	REMARK	DOCUMENT NO
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#### 3. RATING

3.1 Ratings are shown at fig 1. Ratings

	<u>C</u>
TYPE	RFA
Dielectric withstanding voltage	100V
Operating temperature range	—55°C ∼ +130°C
Resistance tolerance	J: ±5%

Rated wattage is the maximum continuous power applicable at ambient temperature from  $-55~^{\circ}\text{C} \sim 70~^{\circ}\text{C}$ 

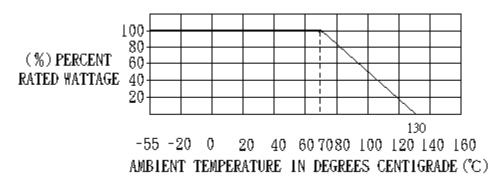


Fig.1 de-rating curve

#### 3.2 Rated voltage

Rated voltage is the D.C. or rms A.C. maximum applied voltage at ambient temperature from -55  $^{\circ}$ C to 70  $^{\circ}$ C. Rated voltage shall be determined from the following formula. If Rated voltage is over maximum operational voltage, then rated voltage is equal to maximum operational voltage on Fig. 1.

$$E = \sqrt{P(W) \times R(\Omega)}$$

E: Rated voltage (V)

P: rated wattage (W)

R : nominal resistance  $(\Omega)$ 



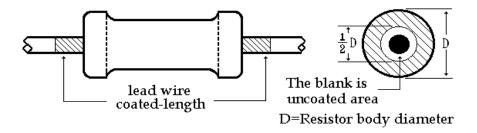
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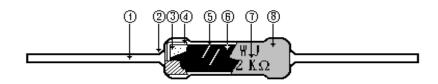
#### 4. DIMENSIONS AND CONSTRUCTIONS

#### 4.1 Construction

Painting specification

Welding point, terminal and lead wire, is permissible to be exposed without the outer coated cover. The extent should be within 1/2 of the arc angle.





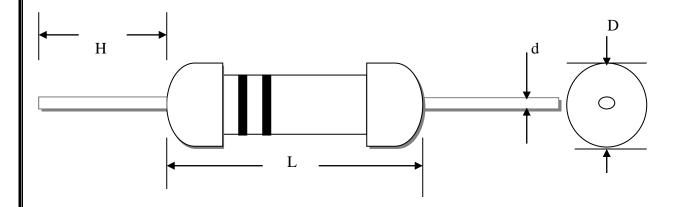
No.	Parts	Material
1	lead wire	tin plated copper wire
2	contact of cap and lead wire	welding
3	ceramic base	alumina ceramic of the kind
4	cap	tin plated iron base
5	helical cutting groove	
6	conductive film	fusible film
7	marking	Color Code
8	insulation coat	silicon paint of the kind flame proof ( worth UL94-V0 )

Fig.2



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#### 4.2 Dimensions



Unit::mm

AMPERE	L	D	Н	d
A375, A500, A750, 1A00, 1A50, 2A00, 2A25, 2A50, 3A00, 3A50	6.0±0.5	2.4±0.3	28±2	0.60±0.1
4A00, 5A00, 7A00	9.0±0.5	3.0±0.5	30±3	0.60±0.1

Fig.3



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RATED CURRENT FUSIBLE RESISTOR RFA series COLOR CODING

NT.	Annana Datia	Calan	E	Symton Code
No.	Ampere Rating	Color	Ex.	Synton Code
1	0.375A	ORANGE, VIOLET		RFA025JA375T
2	0.5A	BLACK, GREEN		RFA025JA500T
3	0.75A	VIOLET, GREEN		RFA025JA750T
4	1A	BROWN, BLACK		RFA025J1A00T
5	1.5A	BROWN, GREEN		RFA025J1A50T
6	2A	RED, BLACK		RFA025J2A00T
7	2.25A	RED, RED		RFA025J2A25T
8	2.5A	RED, GREEN		RFA025J2A50T
9	3A	ORANGE, BLACK		RFA025J3A00T
10	3.5A	ORANGE, GREEN		RFA025J3A50T
11	<b>4</b> A	YELLOW, BLACK		RFA050J4A00T
12	5A	GREEN, BLACK		RFA050J5A00T
13	7A	VIOLET, BLACK		RFA050J7A00T



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#### 5. CHARACTERISTICS

No.	Items	Characteristics	Test methods
1	Resistance value	class <b>J</b> ( ±5% )	JIS C 5201 1 (4.5) classification of applied A
2	Temperature coefficient of resistance	±300ppm/°C	JIS C 5201 1 measured at room temperature and room temperature+100 °C
3	Short-time overload	resistance change within $\pm (1 \% + 0.05 \Omega)$	JIS C 5201 1 (4.13) (rated voltage × 2 5 s)
4	Endurance (under damp and load)	resistance change within $\pm (5 \% + 0.1 \Omega)$	JIS C 5201 1 (4.24) $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 90%-95 %RH,1,000 hours 1.5 hours on / 0.5 hours off cycle.
5	Endurance ( rated load )	resistance change within $\pm (5 \% + 0.1 \Omega)$	JIS C 5201 1 (4.25.1) 1) test temperature70 °C ±3 °C 2) duration 1,000 hours
6	Resistance to soldering heat	resistance change within $\pm (1 \% + 0.05 \Omega)$	JIS C-5201-1 (4.18) 1)temp. of solder 350°C±10°C 2)duration of immersion 3.5 s ±0.5 s
7	Solder ability	95 % (min) coverage	JIS C-5201-1 (4.17) 1)temp. of solder 245°C ± 5°C 2)duration of immersion 3 s ±0.5 s 3)preparation not applicable
8	Temperature cycling	resistance change within $\pm (1 \% + 0.05 \Omega)$	JIS C-5201-1(4.19) 1) Test temp. $-25^{\circ}\text{C} \sim +85^{\circ}\text{C}$ 2) number of 5 cycles
9	Dielectric withstanding voltage	Flash over, burning, insulation damage should not be observed	JIS C 5201 1 (4.7) 1) V-Block 2) test voltage: see table 1 3) duration time 60 s



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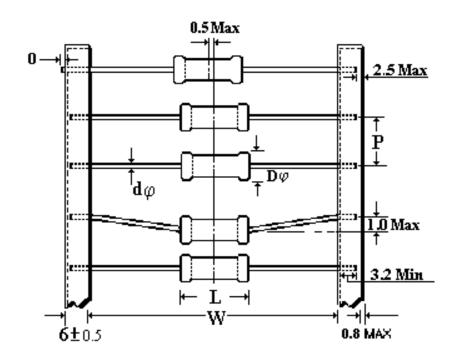
		Т		
		No evidence of flaming	JIS C 5201 1 (4.23.4) AC voltage of,16 times the	
10	Flameproof	or arcing	power rating for 1min.	
		of archig	(V≤4 times max. working voltage)	
			JIS C 5201 1	
		resistance change within	1) test temp. $40^{\circ}$ C $\pm 2^{\circ}$ C	
11	Resistance to damp heat	$\pm (1 \% + 0.05 \Omega)$	2) relative humidity 90 %	
		_(1 /0 1 0.03 22)	to 95 %	
			3) duration 240 hours	
			JIS C 5201 1 (4.6.1)	
12	Insulation resistance	more than 1,000M $\Omega$	test voltage	
12	msulation resistance	111010 than 1,00011122	DC: 500V	
	Neither breakage of the			
		lead wire nor loosening o	of JIS C 5201 1 (4.16)	
13	Tensile strength	termination resistance	10N; 10s±1s	
		change within	1014, 105±15	
		$\pm (1 \% + 0.05 \Omega)$		
		Neither breakage of the		
		lead wire nor loosening o	JIS C 5201 1 (4.16)	
14	Bending strength	termination resistance	360° Round-trip; 3cycle	
		change within	300 Round-urp , Seyere	
	±(1 % +0.05 Ω)			
		sidual resistance $\geq 100 \text{ t}$		
	Percentage of Ampere Rating		Opening Time	
15	100%		4Hour Minimum	
	200%		1 second~ 60 seconds Max	
	300%		0.2 second ~ 3seconds Max	
	800%		0.02 second ~ 0.2seconds Max	

Fig. 4



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#### 6. TAPING



Unit::mm

AMPERE	W	L	Dψ	P	dψ	BOX (pcs)
A375, A500, A750, 1A00, 1A50, 2A00, 2A25, 2A50, 3A00, 3A50	52±1	6.0 ±0.5	2.4 ±0.3	5 ±0.5	0.60 ±0.1	2,500
4A00, 5A00, 7A00	52±1	9.0 ±0.5	3.3 ±0.5	5 ±0.5	0.60 ±0.1	2,500

Fig. 5



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#### 測試報告

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欣統股份有限公司 / SYNTON-TECH CORPORATION

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NEW TAIPEI CITY, TAIWAN, R. O. C.

(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)

: RATED CURRENT FUSIBLE RESISTOR

数件目期(Sample Receiving Date) : RFA TYPE 数件目期(Sample Receiving Date) : 2010/11/2 測試期間(Testing Period) : 2010/11/2

: 2010/11/2 TO 2010/11/09

\_\_\_\_\_\_

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



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NEW TAIPEI CITY, TAIWAN, R. O. C.

(SHUI KOU INDUSTRIAL ZONE, DA LANG, DONG GUAN, GUANG DONG, CHINA)

#### 測試結果(Test Results)

測試郵位(PARTNAME)No.1 : 整體混測 (MIXED ALL PARTS)

测试項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値 (MDL)	結果 (Result) No.1
扬 / Cadmium (Cd)	mg/kg	参考IEC 62321: 2008方法, 以應應耦合 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.
路 / Lead (Pb)	mg/kg	多考IEC 62321: 2008方法, 以感應耦合 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.
表 ( Mercury (Hg)	mg/kg	參考IEC 62321: 2008方法, 以感應耦合 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.
六價絡 / Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	多考IEC 62321: 2008方法, 以UV-VIS檢 測, / With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.
全氣辛烷磺酸 / Perfluorooctane sulfonates (PFOS) PFOS — Acid PFOS — Metal Salt PFOS — Amide	mg/kg	參考US EPA 3540C: 1996方法,以液相 層析質譜儀檢測全氣辛烷磺酸含量./ 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.: 000335- 67-1)	mg/kg	參考US EPA 3540C: 1996方法,以液相 層析質譜儀检測全氣辛酸(錠)含量./ With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.



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NEW TAIPEI CITY, TAIWAN, R. O. C.

(SHUI KOU INDUSTRIAL ZONE, DA LANG, DONG GUAN, GUANG DONG, CHINA)

测试项目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法侦测 極限值 (MDL)	结果 (Result) No.1
多苯環芳香族化合物 / Polynuclear Aromatic Hydrocarbons (PAHs)				
Acenaphthene (CAS No.: 000083-32-9)			0.2	n.d.
Acenaphthylene (CAS No.: 000208-96-8)	1		0.2	n.d.
Anthracene (CAS No.: 000120-12-7)	1		0.2	n.d.
Benzo(a)anthracene (CAS No.: 000056- 55-3)			0.2	n.d.
Benzo(a)pyrene (CAS No.: 000050-32-8)	1		0.2	n.d.
Benzo(b)fluoranthene (CAS No.: 000205- 99-2)		參考ZLS standard ZEK 01.2-08方法。以氣相層析質譜儀(GC/MS)檢測。/ With reference to ZLS standard ZEK 01.2-08 method. Analysis was performed by GC/MS.	0.2	n.d.
Benzo(g,h,i)perylene (CAS No.: 000191- 24-2)	21		0.2	n.d.
Benzo(k)fluoranthene (CAS No.: 000207- 08-9)			0.2	n.d.
Chrysene (CAS No.: 000218-01-9)	mg/kg		0.2	n.d.
Dibenzo(a,h)anthracene (CAS No.: 000053-70-3)			0.2	n.d.
Fluoranthene (CAS No.: 000206-44-0)			0.2	n.d.
Fluorene (CAS No.: 000086-73-7)	1		0.2	n.d.
Indeno[1,2,3-c,d] pyrene (CAS No.: 000193-39-5)			0.2	n.d.
Naphthalene (CAS No.: 000091-20-3)			0.2	n.d.
Phenanthrene (CAS No.: 000085-01-8)			0.2	n.d.
Pyrene (CAS No.: 000129-00-0)			0.2	n.d.
多苯環芳香族化合物16項總和 / Sum of 16 PAHs			-	n.d.

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(SHUI KOU INDUSTRIAL ZONE, DA LANG, DONG GUAN, GUANG DONG, CHINA)

测试项目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値 (MDL)	結果 (Result) No.1
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			5	n.d.
四溴聯苯 / Tetrabromobiphenyl			- 5	n.d.
五溴聯苯 / Pentabromobiphenyl			5	n.d.
六溴聯苯 / Hexabronobiphenyl			5	n.d.
七溴聯苯 / Heptabromobiphenyl			5	n.d.
へ決聯苯 / Octabromobiphenyl			5	n.d.
九溴聯苯 / Nonabromobiphenyl		參考IEC 62321: 2008方法, 以氣相層析	5	n.d.
十溴聯苯 / Decabromobiphenyl		儀/質譜儀檢測. / With reference to IEC 62321: 2008 and performed by GC/MS.	5	n.d.
多溴聯苯醚總和 / Sum of PBDEs	mg/kg		-	n.d.
一溴哪苯醚 / Monobromodiphenyl ether			5	n.d.
二溴聯苯醚 / Dibromodiphenyl ether			5	n.d.
三溴聯苯醚 / Tribronodiphenyl 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.
鹵素 / Halogen				
鹵素 (氣) / Halogen-Fluorine (F) (CAS No.: 014762-94-8)		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.
画素(氣)/ Halogen-Chlorine (C1) (CAS No.: 022537-15-1)			50	n.d.
画素(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)	1		50	n.d.

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#### Test Report

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(DONG GUAN PLANT)

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NEW TAIPEI CITY, TAIWAN, R. O. C.

(SHUI KOU INDUSTRIAL ZONE, DA LANG, DONG GUAN, GUANG DONG, CHINA)

#### 備註(Note):

- 1. mg/kg = ppm
- 2. n.d. = Not Detected (未检出)
- 3. MDL = Method Detection Limit (方法侦测極限值)
- 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别單一材質的含量。(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参考資訊(Reference Information): 指令 2006/122/EC (Directive 2006/122/EC)

- (1) 該物質不可置於市場上或使用於特殊物質或配置成分重量濃度等於或大於0.005%. (May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0.005% by mass.)
- (2) 該物質不可置於市場上的半成品或商品或其物件; 假若零件上明顯地具有PFOS並參照結構上及微細構造上計 算PFOS重量濃度等於或大於0.1%,而紡織品或其他覆蓋物質,如果PFOS在覆蓋物質中含量等於或大於1µg/m².

(May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0.1% by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than lug/m2 of the coated material.)

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# SYNTON-TECH CORPORATION

#### RATED CURRENT FUSIBLE RESISTOR **RFA TYPE**

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#### 測試報告 Test Report

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欣純股份有限公司 / SYNTON-TECH CORPORATION

(DONG GUAN PLANT)

新北市汐止區新台五路1段79號16樓之3

16F-3, NO. 79, FAR EAST WORLD CENTER SEC. 1, HSIN TAI WU ROAD, HSI-CHIH DISTRICT,

NEW TAIPEI CITY, TAIWAN, R. O. C.

(SHUI KOU INDUSTRIAL ZONE, DA LANG, DONG GUAN, GUANG DONG, CHINA)

PAHs 多考資料 (Reference information):

依據ZEK 01.2-08之要求:產品中最大值為

(Requirement of ZEK 01.2-08 : Restraining maximum values for products)

項目 (Parameter)	第1類 (Category 1)	第2類 (Category 2)	第3類 (Category 3)
	與食品接觸或放入嘴內的 材料,以及給三歲以下的 幼兒使用的玩具。 (Materials in contact with foodstuff or materials which are meant to put in the mouth as well as toys for children <36 months.)	持續地(長時間)與皮膚接 觸逾30秒。以及不屬第1 類的玩具。 (Materials with foreseeable skin contact >30 s (prolonged skin contact) and toys not covered by category 1.)	暫時地(短時間)與皮膚接觸但不逾30秒或不會與皮膚接觸。 (Materials with foreseeable skin contact <30 s (short time skin contact) or without skin contact.)
苯肼(a)芘 Benzo[a]pyrene (mg/kg)	<mdl (<0.2)**<="" td=""><td>1</td><td>20</td></mdl>	1	20
環保署規範16項PAH 總濃度 (Sum of 16 EPA-PAH) (mg/kg)*	<mdl (<0.2)**<="" td=""><td>10</td><td>200</td></mdl>	10	200

#### 注意(Remark):

\* = PAH濃度大於0.2mg/kg時,則須計算PAH總濃度值.

(Only PAH substances >0.2 mg/kg are taken into account while calculating the sum of PAHs.)

\*\* = 最大濃度值超出等級一的限制,但在等級二的濃度限制值內時,可能需要確認測試材質是否合適於食品容器或是依 照DIN EN1186ff/ § 64 LFGB 80.30-1方法,針對特定PAH的遷移測試進行測試。遷移測試的結論需依照食品法規規範。

(In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material for contact with foodstuff or oral mucosa by additional specific migration tests of PAH components based on DIN EN 1186ff and § 64 LFGB 80.30-1. The conclusion of the migration test results must be made based on food law criteria.)

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# SYNTON-TECH CORPORATION

#### RATED CURRENT FUSIBLE RESISTOR **RFA TYPE**

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#### 測試報告

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欣純股份有限公司 / SYNTON-TECH CORPORATION

(DONG GUAN PLANT)

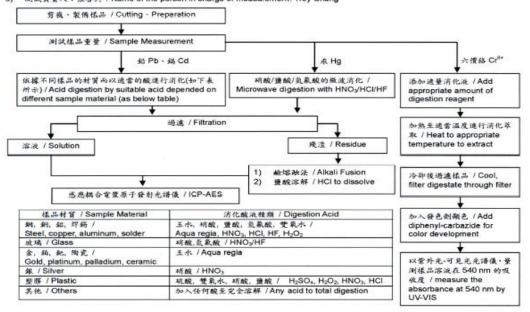
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(SHUI KOU INDUSTRIAL ZONE, DA LANG, DONG GUAN, GUANG DONG, CHINA)

- 1) 根據以下的流程圖之條件,樣品已完全溶解。( 六價錦測試方法除外 ) / These samples were dissolved totally by pre-conditioning method according to below flow chart. ( Cr<sup>6\*</sup> test method excluded )
- 测试人员:楊昼偉 / Name of the person who made measurement: Climbgreat Yang
- 测试负责人:张啓典 / Name of the person in charge of measurement: Troy Chang



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放純股份有限公司 / SYNTON-TECH CORPORATION

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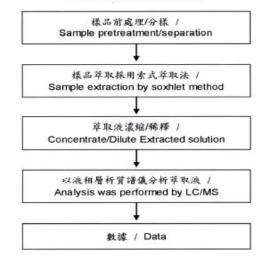
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索式萃取(LC/MS)分析流程圖 /

#### Analytical flow chart of Soxhlet extraction (LC/MS) procedure

- 1) 測試人員:傅莉雅 / Name of the person who made measurement: Lydia Fu
- 2) 测试负责人:陳新智 / Name of the person in charge of measurement: Shinjyh Chen
- 測試項目(Test Items): 全氣辛烷磺酸/全氟辛酸(銨)、苯並三唑類化合物 / PFOS/PFOA · Benzotriazole



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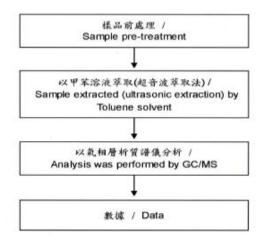
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#### 多苯環芳香族化合物分析流程圖 /

#### PAHs (Polynuclear Aromatic Hydrocarbons) analytical flow chart

- 1) 浏试人员:徐毓明 / Name of the person who made measurement: Andy Shu
- 2) 测試負责人: 陳新智 / Name of the person in charge of measurement: Shinjyh Chen



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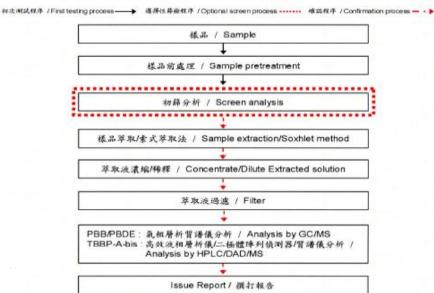
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(SHUI KOU INDUSTRIAL ZONE, DA LANG, DONG GUAN, GUANG DONG, CHINA)

#### 分析流程圖 / Analytical flow chart

1) 附試人員:翁賜彬 / Name of the person who made measurement: Roman Wong 2) 辨試負責人:張啓興 / Name of the person in charge of measurement: Troy Chang

■ 測試項目(Test Items): 多溴聯苯/多溴聯苯醚, 四溴雙酚-A-雙 / PBB/PBDE, TBBP-A-bis



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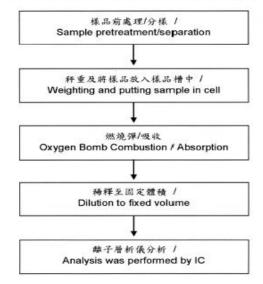
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#### 鹵素分析流程圖 / Analytical flow chart of halogen content

- 1) 测试人員: 陳思臻 / Name of the person who made measurement: Rita Chen
- 2) 測試負責人:張啓興 / Name of the person in charge of measurement: Troy Chang



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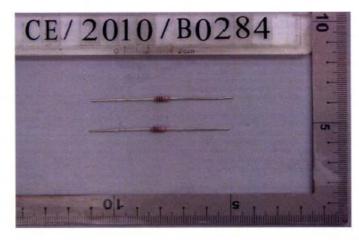
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