

測試報告 Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 1 of 19

億光電子工業股份有限公司
EVERLIGHT ELECTRONICS CO., LTD.
台北縣土城市中央路三段76巷25號
NO. 25, LANE 76, SEC. 3, CHUNG YANG ROAD, TUCHENG, TAIPEI, TAIWAN, R. O. C.




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) :

BASIC INFORMATION	
Type of Product	ARRAY LAMP
Supplier Company Name	EVERLIGHT
Address	NO. 25, LANE 76, SEC. 3, CHUNG YANG ROAD, TUCHENG, TAIWAN, R. O. C.
Tel/Fax/Email	TEL:886-2-267-2000 EXT:1203
	FAX:886-2-267-9948
	E-MAIL: meelin@everlight.com
Contact Person	LIN HSIAO HUA
EVERLIGHT REPORT NO	EVERLIGHT- -SGS-20/01/2010
PRODUCT INFORMATION	
Product/component Sample description	LED ARRAY
Quantity (numbers or weight)	CE/2010/12548-0.9689g, CE/2009/C3583-0.1605 g
Supplier P/N	ARRAY LED (LAMP)
Product Lot No	EP9121535
Country of Origin	TAIWAN
TEST INFORMATION	
Digital Photo(s) of sample(s) after being prepared	JPG EMBEDDED IN EACH REPORT
Sample preparation	CUTTING
Test Method	Cd , Pb , Hg , Cr(VI), PBB/PBDE - IEC 62321, Halogen-BS EN 14582
PQL and/or MDL	Cd , Pb , Hg: < 2 mg/kg; PBB/PBDE: < 5 mg/kg; Halogen: 50 mg/kg
Name of Analyzer	Cd , Pb , Hg, Cr(VI): Climbgreat Yang; PBB/PBDE: Roman Wong; Halogen: Alan Chen

收件日期(Sample Receiving Date) : 2009/12/15 AND 2010/01/13
 測試期間(Testing Period) : 2009/12/15 TO 2009/12/21 AND 2010/01/13 TO 2010/01/20

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

* 此份報告為合併 CE/2009/C3583 及 CE/2010/12548 之報告 *
 (This report is combined with reports of CE/2009/C3583 and CE/2010/12548)


Chenyu Kung / Operation Manager
 Signed for and on behalf of
SGS TAIWAN LTD.
 Chemical Laboratory – Taipei

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號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 2 of 19

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結論(Conclusion)

: 根據客戶所提供的樣品，其多苯環芳香族化合物的測試結果符合德國ZLS的ZEK 01.2-08及其相關修訂文件中的第1類PAHs要求 (Base upon the performed tests by submitted samples, the test results of PAHs comply with the PAHs requirement according to (Category 1) of ZEK 01.2-08 of German ZLS and its amendments.)

測試結果(Test Results)

測試部位(PART NAME) NO.1 : 黑色塑膠 (BLACK PLASTIC (CE/2010/12548))
 測試部位(PART NAME) NO.2 : 本體 (BODY (CE/2009/C3583 NO.1))
 測試部位(PART NAME) NO.3 : 銀色金屬腳鍍層 (PLATING LAYER OF SILVER COLORED METAL PIN (CE/2009/C3583 NO.2))
 測試部位(PART NAME) NO.4 : 銀色金屬腳底材 (BASE MATERIAL OF SILVER COLORED METAL PIN (CE/2009/C3583 NO.3))

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	NO.2	NO.3
鎘 / Cadmium (Cd)	mg/kg	參考IEC 62321: 2008方法, 以感應藕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.	n.d.	n.d.
鉛 / Lead (Pb)	mg/kg	參考IEC 62321: 2008方法, 以感應藕合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	19	n.d.	40
汞 / Mercury (Hg)	mg/kg	參考IEC 62321: 2008方法, 以感應藕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.	n.d.	n.d.
六價鉻 / Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	參考IEC 62321: 2008方法, 以UV-VIS檢測. / With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.	n.d.	---

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測試報告

Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 3 of 19

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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	NO.2	NO.3
六價鉻 / Hexavalent Chromium Cr(VI) by Spot test / boiling water extraction	**	參考IEC 62321: 2008方法, 以Spot test / boiling water extraction 方法檢測. / With reference to IEC 62321: 2008 and performed by Spot test / boiling water extraction Method. (See Note 5)	0.02mg/kg with 50 cm ² surface area	---	---	Negative
全氟辛烷磺酸 / 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.	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.	n.d.	---
四溴雙酚-A / Tetrabromobisphenol A (TBBP-A) (CAS No.: 000079-94-7)	mg/kg	參考DIN 53313方法, 以氣相層析儀/ 質譜儀檢測. / With reference to DIN 53313. Analysis was performed by GC/MS.	10	n.d.	n.d.	---
鹵素 / Halogen						
鹵素(氟) / Halogen-Fluorine (F) (CAS No.: 014762-94-8)	mg/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	1260	n.d.	---
鹵素(氯) / Halogen-Chlorine (Cl) (CAS No.: 022537-15-1)	mg/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.	207	---

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測試報告 Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 4 of 19

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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	NO.2	NO.3
鹵素 (溴) / Halogen-Bromine (Br) (CAS No.: 010097-32-2)	mg/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	36600	n.d.	---
鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 014362-44-8)	mg/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.	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.	n.d.	---
一溴聯苯 / Monobromobiphenyl			5	n.d.	n.d.	---
二溴聯苯 / Dibromobiphenyl			5	n.d.	n.d.	---
三溴聯苯 / Tribromobiphenyl			5	n.d.	n.d.	---
四溴聯苯 / Tetrabromobiphenyl			5	n.d.	n.d.	---
五溴聯苯 / Pentabromobiphenyl			5	n.d.	n.d.	---
六溴聯苯 / Hexabromobiphenyl			5	n.d.	n.d.	---
七溴聯苯 / Heptabromobiphenyl			5	n.d.	n.d.	---
八溴聯苯 / Octabromobiphenyl			5	n.d.	n.d.	---
九溴聯苯 / Nonabromobiphenyl			5	n.d.	n.d.	---
十溴聯苯 / Decabromobiphenyl			5	n.d.	n.d.	---
多溴聯苯醚總和 / Sum of PBDEs			-	n.d.	n.d.	---
一溴聯苯醚 / Monobromodiphenyl ether			5	n.d.	n.d.	---
二溴聯苯醚 / Dibromodiphenyl ether			5	n.d.	n.d.	---
三溴聯苯醚 / Tribromodiphenyl ether			5	n.d.	n.d.	---
四溴聯苯醚 / Tetrabromodiphenyl ether			5	n.d.	n.d.	---
五溴聯苯醚 / Pentabromodiphenyl ether			5	n.d.	n.d.	---
六溴聯苯醚 / Hexabromodiphenyl ether			5	n.d.	n.d.	---
七溴聯苯醚 / Heptabromodiphenyl ether			5	n.d.	n.d.	---
八溴聯苯醚 / Octabromodiphenyl ether			5	n.d.	n.d.	---
九溴聯苯醚 / Nonabromodiphenyl ether	5	n.d.	n.d.	---		
十溴聯苯醚 / Decabromodiphenyl ether	5	n.d.	n.d.	---		

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測試報告

Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 5 of 19

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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	NO.2	NO.3
多苯環芳香族化合物 / Polynuclear Aromatic Hydrocarbons (PAHs)						
Acenaphthene (CAS No.: 000083-32-9)	mg/kg	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.	n.d.	---
Acenaphthylene (CAS No.: 000208-96-8)			0.2	n.d.	n.d.	---
Anthracene (CAS No.: 000120-12-7)			0.2	n.d.	n.d.	---
Benzo[a]anthracene (CAS No.: 000056-55-3)			0.2	n.d.	n.d.	---
Benzo[a]pyrene (CAS No.: 000050-32-8)			0.2	n.d.	n.d.	---
Benzo[b]fluoranthene (CAS No.: 000205-99-2)			0.2	n.d.	n.d.	---
Benzo[g,h,i]perylene (CAS No.: 000191-24-2)			0.2	n.d.	n.d.	---
Benzo[k]fluoranthene (CAS No.: 000207-08-9)			0.2	n.d.	n.d.	---
Chrysene (CAS No.: 000218-01-9)			0.2	n.d.	n.d.	---
Dibenzo[a,h]anthracene (CAS No.: 000053-70-3)			0.2	n.d.	n.d.	---
Fluoranthene (CAS No.: 000206-44-0)			0.2	n.d.	n.d.	---
Fluorene (CAS No.: 000086-73-7)			0.2	n.d.	n.d.	---
Indeno[1,2,3-c,d] pyrene (CAS No.: 000193-39-5)			0.2	n.d.	n.d.	---
Naphthalene (CAS No.: 000091-20-3)			0.2	n.d.	n.d.	---
Phenanthrene (CAS No.: 000085-01-8)			0.2	n.d.	n.d.	---
Pyrene (CAS No.: 000129-00-0)			0.2	n.d.	n.d.	---
多苯環芳香族化合物16項總和 / Sum of 16 PAHs			-	n.d.	n.d.	---

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測試報告

Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 6 of 19

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				NO.1	NO.2	NO.3
可塑劑定量分析 / Phthalates						
鄰苯二甲酸甲苯基丁酯 / BBP (Benzyl butyl phthalate) (CAS No.: 000085-68-7)	%	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.	n.d.	---
鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No.: 000117-81-7)	%	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	0.504	n.d.	---
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 026761-40-0)	%	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	0.182	n.d.	---
鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (CAS No.: 028553-12-0)	%	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	20.9	n.d.	---
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No.: 000117-84-0)	%	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.	n.d.	---
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 000084-74-2)	%	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.	n.d.	---

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號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 7 of 19

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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. 4
鎘 / Cadmium (Cd)	mg/kg	參考IEC 62321: 2008方法, 以感應 藕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, 以感應 藕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.
汞 / Mercury (Hg)	mg/kg	參考IEC 62321: 2008方法, 以感應 藕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 Spot test / boiling water extraction	**	參考IEC 62321: 2008方法, 以Spot test / boiling water extraction 方法檢測. / With reference to IEC 62321: 2008 and performed by Spot test / boiling water extraction Method. (See Note 5)	0.02mg/kg with 50 cm ² surface area	Negative

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Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 8 of 19

億光電子工業股份有限公司
 EVERLIGHT ELECTRONICS CO., LTD.
 台北縣土城市中央路三段76巷25號
 NO. 25, LANE 76, SEC. 3, CHUNG YANG ROAD, TUCHENG, TAIPEI, TAIWAN, R. O. C.



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. Spot-test:
 - Negative = Absence of Cr(VI) coating / surface layer(鍍層中偵測不到六價鉻),
 - Positive = Presence of Cr(VI) coating / surface layer(鍍層中偵測到六價鉻);
 - The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.
 - (當該測項無法確認時, 測試樣品可藉由boiling-water-extraction測試方法進一步確認)
- Boiling-water-extraction:
 - Negative = Absence of Cr(VI) coating / surface layer(鍍層中偵測不到六價鉻),
 - Positive = Presence of Cr(VI) coating / surface layer(鍍層中偵測到六價鉻);
 - the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.
6. "---" = Not Conducted (未測項目)
7. ** = Qualitative analysis (No Unit) 定性分析(無單位)
8. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)

PFOS參考資訊(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 1µg/m² of the coated material.)

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Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 9 of 19

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參考資料(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.)
苯駢(a)芘 Benzo[a]pyrene (mg/kg)	<MDL (<0.2)**	1	20
環保署規範16項PAH 總濃度 (Sum of 16 EPA-PAH) (mg/kg)*	<MDL (<0.2)**	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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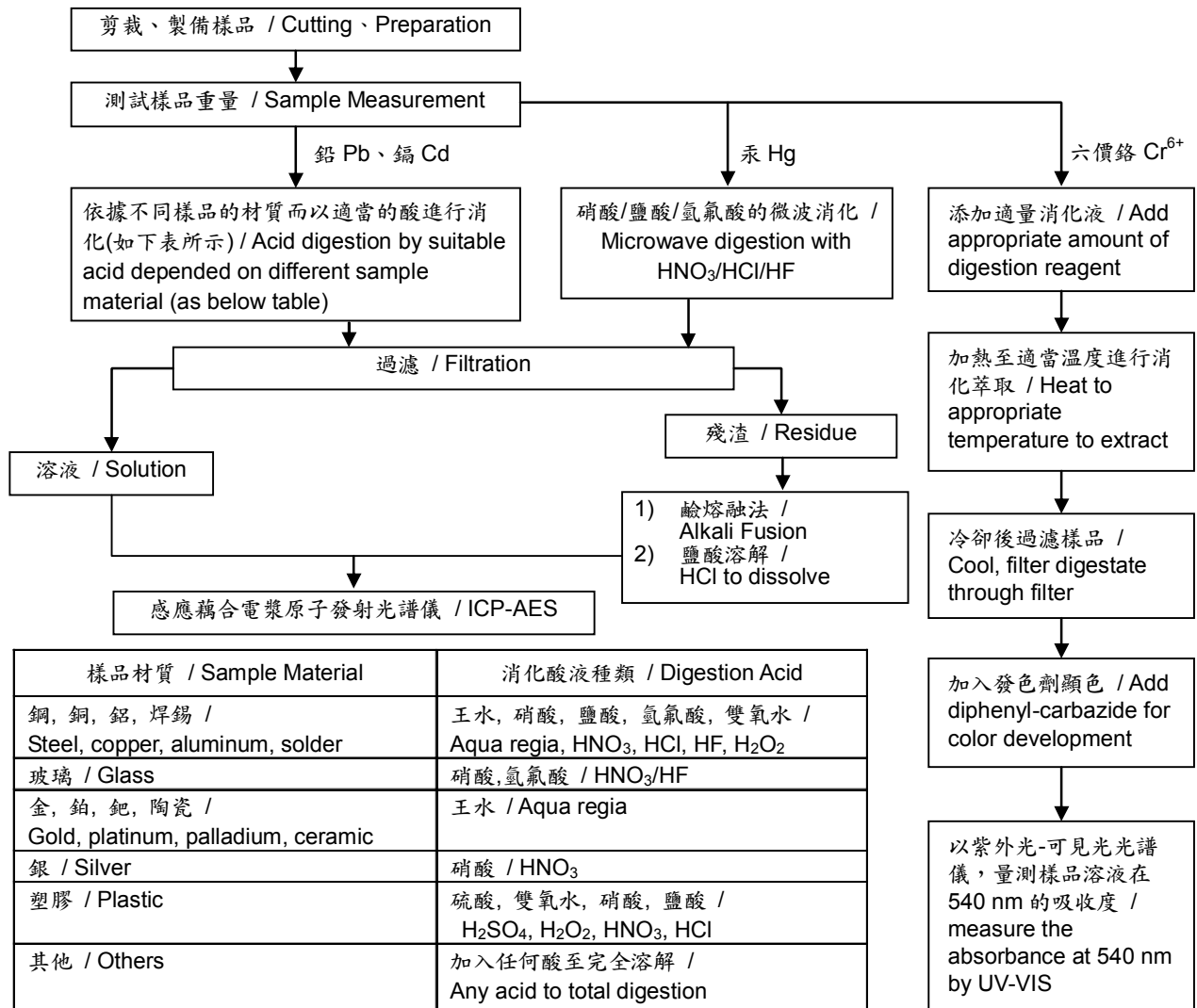
號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 10 of 19

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測試部位(PART NAME) NO.1, 2, 4

- 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. (Cr⁶⁺ test method excluded)
- 2) 測試人員：楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 3) 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



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測試報告 Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 11 of 19

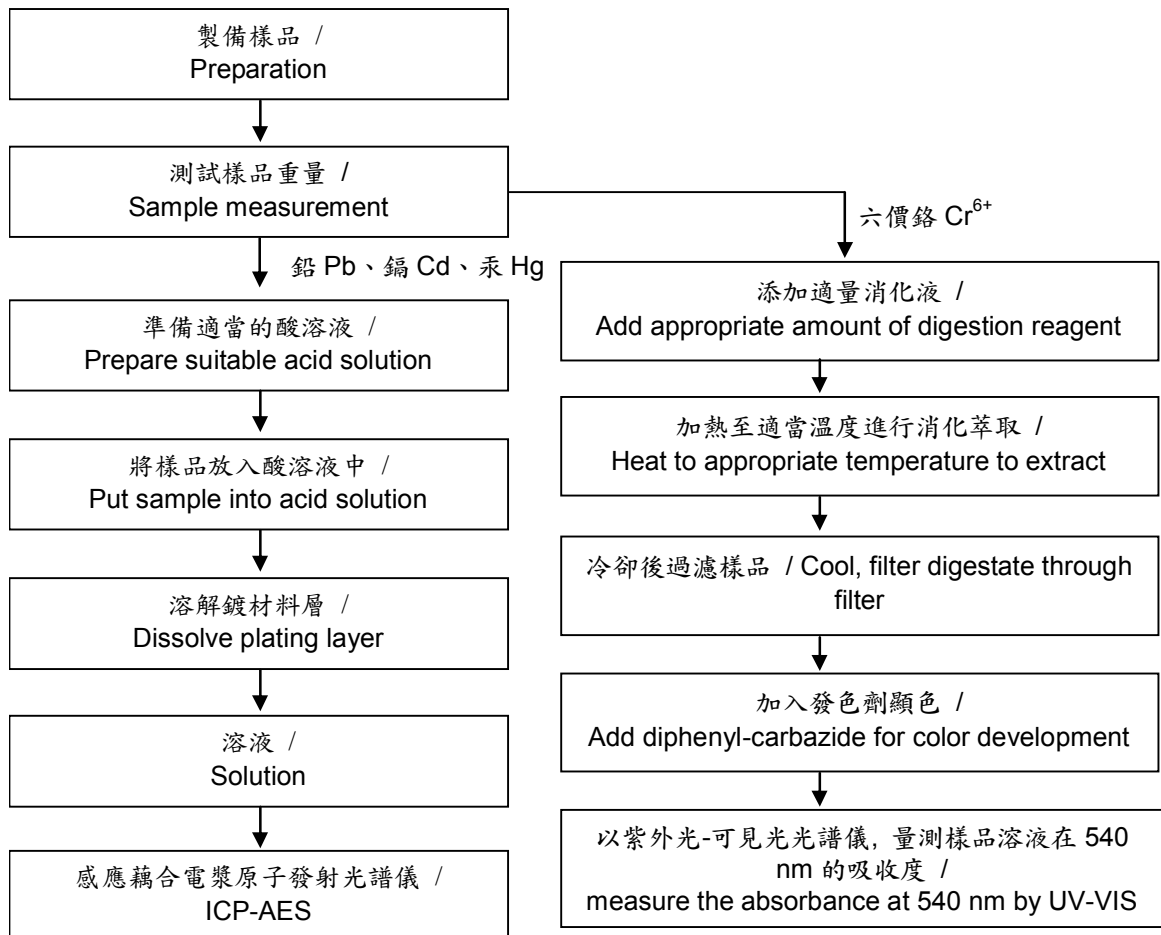
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測試部位(PART NAME) NO.3

- 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. (Cr⁶⁺ test method excluded)
- 2) 測試人員：楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 3) 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

鍍層重金屬測試流程圖 / Flow Chart of Stripping method for metal analysis



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測試報告 Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 12 of 19

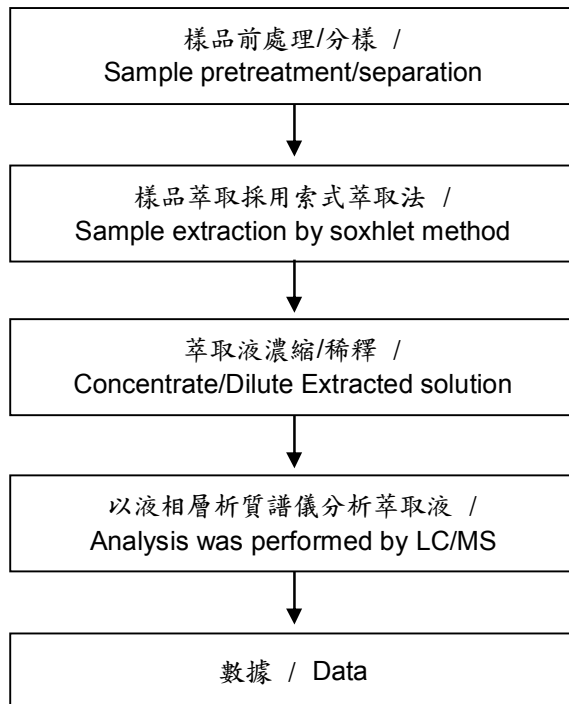
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索式萃取(LC/MS)分析流程圖 /

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) 測試負責人：陳新智 / Name of the person in charge of measurement: Shinjyh Chen
- 測試項目(Test Items): 全氟辛烷磺酸/全氟辛酸(銨)、苯並三唑類化合物 /
PFOS/PFOA、Benzotriazole



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測試報告 Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 13 of 19

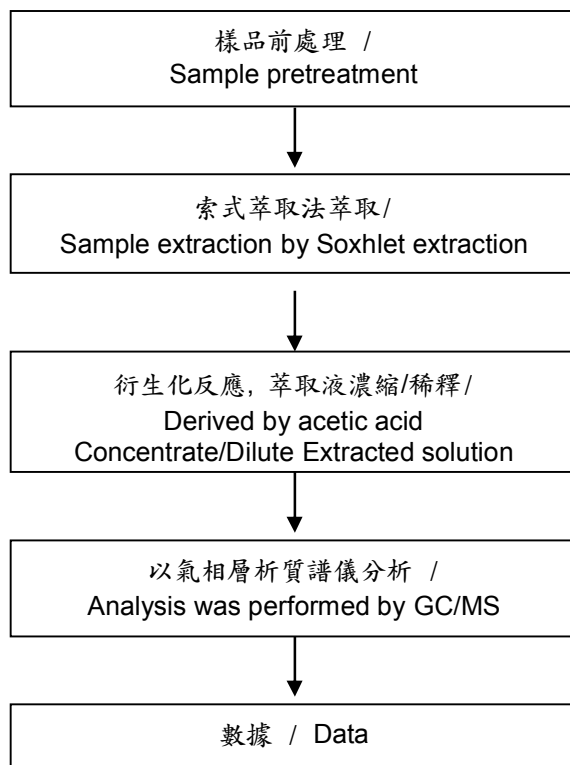
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分析流程圖 / analytical flow chart

- 1) 測試人員：傅舒萱 / Name of the person who made measurement: Amanda Fu
- 2) 測試負責人：陳新智 / Name of the person in charge of measurement: Shinjyh Chen

■ 測試項目(Test Items):四溴雙酚-A、雙酚 A / TBBP-A、Bisphenol A



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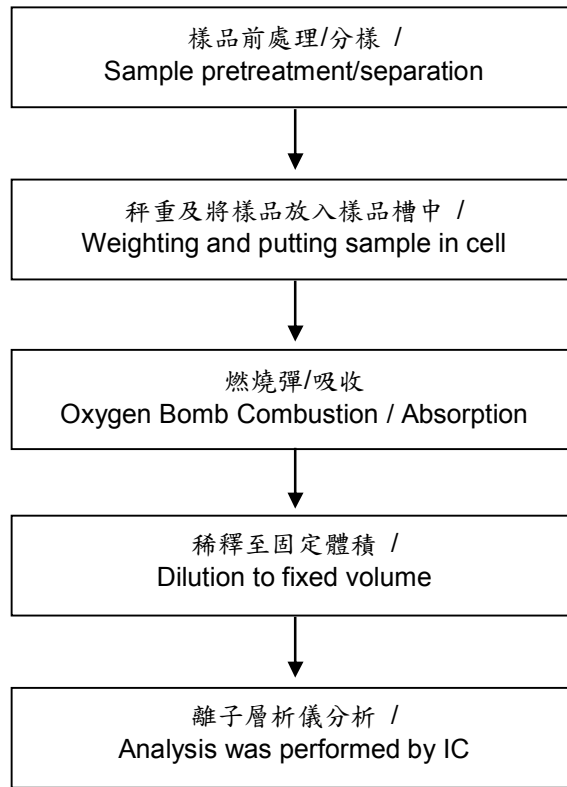
號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 14 of 19

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

- 1) 測試人員：陳立倫 / Name of the person who made measurement: Alan Chen
- 2) 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



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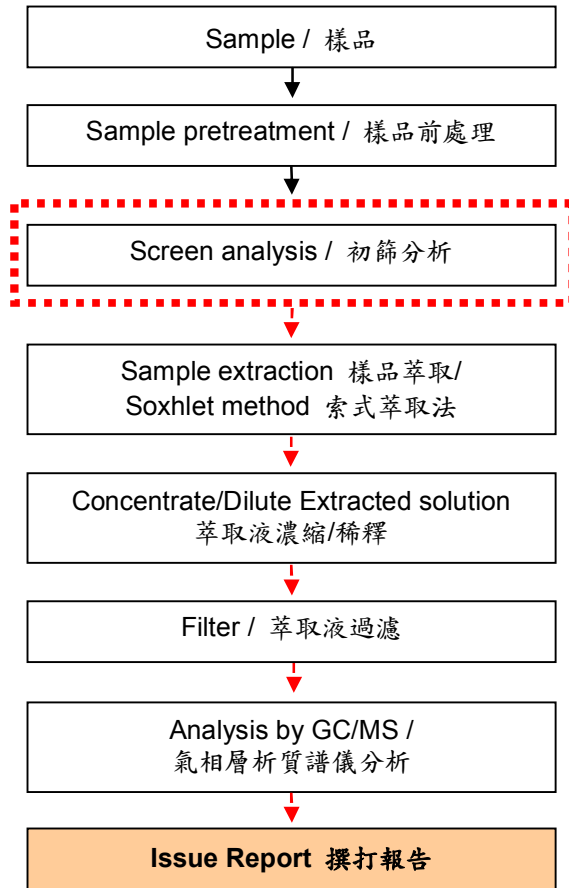
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多溴聯苯/多溴聯苯醚分析流程圖 / PBB/PBDE analytical FLOW CHART

- 1) 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
 - 2) 測試負責人：陳新智 / Name of the person in charge of measurement: Shinjyh Chen
- 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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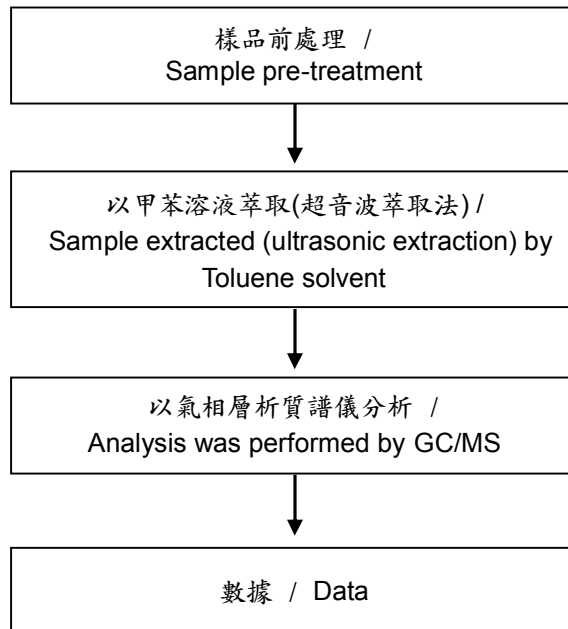
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多苯環芳香族化合物分析流程圖 / PAHs (Polynuclear Aromatic Hydrocarbons) analytical flow chart

- 1) 測試人員：徐毓明 / Name of the person who made measurement: Andy Shu
- 2) 測試負責人：陳新智 / Name of the person in charge of measurement: Shinjyh Chen



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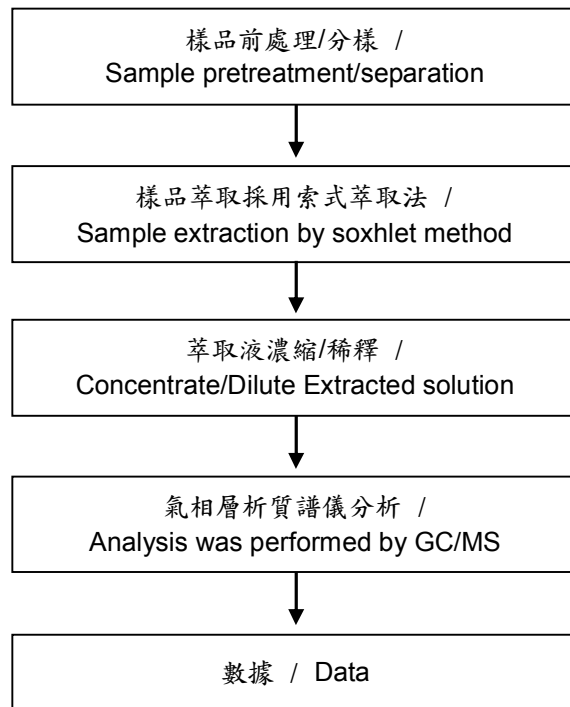


索式萃取(GC/MS)分析流程圖 /

Analytical flow chart of Soxhlet extraction (GC/MS) procedure

- 1) 測試人員：傅莉雅 / Name of the person who made measurement: Lydia Fu
- 2) 測試負責人：陳新智 / Name of the person in charge of measurement: Shinjyh Chen

■ 測試項目(Test Items): 可塑劑、苯並三唑類化合物、六溴環十二烷 / Phthalate、Benzotriazole、HBCDD



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測試報告 Test Report

號碼(No.) : CE/2010/12548A 日期(Date) : 2010/01/20 頁數(Page) : 18 of 19

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測試部位 (PART NAME) NO.1



測試部位 (PART NAME) NO.2



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測試部位 (PART NAME) NO. 3



測試部位 (PART NAME) NO. 4



** 報告結尾(End of Report) **

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