

測試報告

華上光電股份有限公司
ARIMA OPTOELECTRONICS CORP.
桃園縣大溪鎮南興里仁和路2段349號7F
7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
日期 : 2007/04/30
頁數 : 1 of 17



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 sample(s) was/were submitted and identified by/on behalf of the client as :

樣品名稱(Sample Description) : 四元 ALINGAP
收件日期(Sample Receiving Date) : 2007/04/23
測試期間(Testing Period) : 2007/04/23 TO 2007/04/30

=====
測試結果 : 請見下一頁.


Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 2 of 17



測試結果

測試部位 NO.1 : 四元 / ALINGAP

測試項目 (Test Item)	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, Ed. 1 111/54/CDV 方法, 用感應耦合電漿原子發射光譜 儀 (ICP-AES) 檢測鎘含量. / With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Cadmium by ICP-AES.	2	n.d.
鉛 / Lead (Pb)	mg/kg	參考IEC 62321, Ed. 1 111/54/CDV 方法, 用感應耦合電漿原子發射光譜 儀 (ICP-AES) 檢測鉛含量. / With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Lead by ICP-AES.	2	n.d.
汞 / Mercury (Hg)	mg/kg	參考IEC 62321, Ed. 1 111/54/CDV 方法, 用感應耦合電漿原子發射光譜 儀 (ICP-AES) 檢測汞含量. / With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Mercury by ICP-AES.	2	n.d.
六價鉻 / Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	針對非金屬材質之樣品, 參考IEC 62321, Ed. 1 111/54/CDV 方法檢 測, 用UV-VIS檢測六價鉻含量. / With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Hexavalent Chromium for non- metallic samples by UV/Vis Spectrometry.	2	n.d.
多氯聯苯 / Polychlorinated Biphenyls (PCBs) (CAS NO.: 001336-36-3)	mg/kg	參考USEPA 8270D方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to USEPA8270D method. Analysis was performed by GC/MS.	0.5	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 3 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
多氯奈 / Polychlorinated Naphthalene (PCNs)	mg/kg	參考US EPA 8270D方法, 以氣相層析質譜儀檢測. / With reference to US EPA 8270D. Analysis was performed by GC/MS.	5	n.d.
氯化石蠟 / Chlorinated Paraffin (C10~C13) (CAS NO.: 010871-26-2)	%	參考US EPA 8270D方法, 以氣相層析質譜儀檢測. / With reference to US EPA 8270D. Analysis was performed by GC/MS.	0.01	n.d.
滅蟻靈 / Mirex (CAS NO.: 002385-85-5)	mg/kg	參考US EPA 8270D方法, 以氣相層析質譜儀檢測. / With reference to US EPA 8270D. Analysis was performed by GC/MS.	4	n.d.
聚氯乙烯 / PVC (CAS NO.: 9002-86-2)	%	聚氯乙烯定性分析, 以紅外線光譜分析法搭配垂直式全反射配件及熱裂解氣相層析質譜儀檢測 / Analysis was performed by FTIR/ATR and Pyrolyzer-GC/MS.	1	Negative
鹵素 / HALOGEN	---	參考prEN14582方法B, 以離子層析儀分析氟, 氯, 溴, 碘含量 / With reference to prEN14582 method B. Analysis was performed by IC method for F, Cl, Br, I content.	---	---
鹵素 (氯) / Halogen-Chlorine (Cl) (CAS NO.: 007782-50-5)	mg/kg	參考prEN14582方法B, 以離子層析儀分析氯含量 / With reference to prEN14582 method B. Analysis was performed by IC method for Chlorine content.	50	n.d.
鹵素 (氟) / Halogen-Fluorine (F) (CAS NO.: 007782-41-4)	mg/kg	參考prEN14582方法B, 以離子層析儀分析氟含量 / With reference to prEN14582 method B. Analysis was performed by IC method for Fluorine content.	50	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 4 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
鹵素 (溴) / Halogen-Bromine (Br) (CAS NO.: 007726-95-6)	mg/kg	參考prEN14582方法B, 以離子層析儀分析溴含量 / With reference to prEN14582 method B. Analysis was performed by IC method for Bromine content.	50	n.d.
鹵素 (碘) / Halogen-Iodine (I) (CAS NO.: 007553-56-2)	mg/kg	參考prEN14582方法B, 以離子層析儀分析碘含量 / With reference to prEN14582 method B. Analysis was performed by IC method for Iodine content.	50	n.d.
有機錫 / Organic-tin compounds	---	---	---	---
三苯基錫 / Triphenyl Tin (TphT) (CAS NO.: 000668-34-8)	mg/kg	本測試參考DIN 38407-13方法, 以氣相層析儀/火焰光度偵測器檢測。 / With reference to DIN 38407-13. Analysis was performed by	0.03	n.d.
三丁基錫 / Tributyl Tin (TBT) (CAS NO.: 000688-73-3)	mg/kg	本測試參考DIN 38407-13方法, 以氣相層析儀/火焰光度偵測器檢測。 / With reference to DIN 38407-13. Analysis was performed by	0.03	n.d.
石棉 / Asbestos	---	---	---	---
棕石棉 / Amosite (CAS NO.: 012172-73-5)	%	參考NIOSH 9000 / X光繞射定性分析法 (XRD) / As per NIOSH 9000 method. Analysis was performed by XRD.	1	Negative
白石棉 / Chrysotile (CAS NO.: 012001-29-5)	%	參考NIOSH 9000 / X光繞射定性分析法 (XRD) / As per NIOSH 9000 method. Analysis was performed by XRD.	1	Negative
青石棉 / Crocidolite (CAS NO.: 012001-28-4)	%	參考NIOSH 9000 / X光繞射定性分析法 (XRD) / As per NIOSH 9000 method. Analysis was performed by XRD.	1	Negative
斜方角閃石 / Anthophyllite (CAS NO.: 017068-78-9)	%	參考NIOSH 9000 / X光繞射定性分析法 (XRD) / As per NIOSH 9000 method. Analysis was performed by XRD.	1	Negative

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 5 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
透閃石 / Tremolite (CAS NO.: 014567-73-8)	%	參考NIOSH 9000 / X光繞射定性分析法 (XRD) / As per NIOSH 9000 method. Analysis was performed by XRD.	1	Negative
陽起石 / Actinolite (CAS NO.: 013768-00-8)	%	參考NIOSH 9000 / X光繞射定性分析法 (XRD) / As per NIOSH 9000 method. Analysis was performed by XRD.	1	Negative
偶氮 (AZO)	---	---	---	---
1): 4-氨基二苯 / 4-AMINODIPHENYL (CAS NO.: 000092-67-1)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
2): 聯苯胺 / BENZIDINE (CAS NO.: 00092-87-5)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
3): 4-氯鄰甲苯胺 / 4-CHLORO-O-TOLUIDINE (CAS NO.: 000095-69-2)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
4): 2-萘胺 / 2-NAPHTHYLAMINE (CAS NO.: 000091-59-8)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
5): 鄰氨基二甲基偶氮 / O-AMINOAZOTOLUENE (CAS NO.: 000097-56-3)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
6): 對硝基鄰甲苯胺 / 2-AMINO-4-NITROTOLUENE (CAS NO.: 000099-55-8)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 6 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
7): 對氯苯胺 / P-CHLOROANILINE (CAS NO.: 000106-47-8)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
8): 4-甲氧基-間苯二胺 / 2,4-DIAMINOANISOLE (CAS NO.: 000615-05-4)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
9): 4,4'-二氨基二苯甲烷 / 4,4'-DIAMINODIPHENYLMETHANE (CAS NO.: 000101-77-9)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
10): 3,3'-二氯聯苯胺 / 3,3'-DICHLOROBENZIDINE (CAS NO.: 000091-94-1)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
11): 3,3'-二甲氧基聯苯胺 / 3,3'-DIMETHOXYBENZIDINE (CAS NO.: 000119-90-4)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
12): 3,3'-二甲基聯苯胺 / 3,3'-DIMETHYLBENZIDINE (CAS NO.: 000119-93-7)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
13): 3,3'-二甲基-4,4'-二氨基二苯甲烷 / 3,3'-DIMETHYL-4,4'-DIAMINODIPHENYLMETHANE (CAS NO.: 000838-88-0)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
14): 2-甲氧基-5-甲基聯苯 / P-CRESIDINE (2-METHOXY-5-METHYLANILINE) (CAS NO.: 000120-71-8)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
15): 4,4'-亞甲基雙(氯苯胺) / 4,4'-METHYLENE-BIS-(2-CHLOROANILINE) (CAS NO.: 000101-14-4)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 7 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
16): 4,4'-氧化雙苯胺 / 4,4'- OXYDIANILINE (CAS NO.: 000101-80-4)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣 相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
17): 4,4'-硫代雙苯胺 / 4,4'- THIODIANILINE (CAS NO.: 000139-65-1)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣 相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
18): 鄰甲苯胺 / O-TOLUIDINE (CAS NO.: 000095-53-4)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣 相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
19): 2,4-二氨基甲苯 / 2,4- TOLUYLENEDIAMINE (CAS NO.: 000095-80- 7)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣 相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
20): 2,4,5-三甲基苯胺 / 2,4,5- TRIMETHYLANILINE (CAS NO.: 000137-17- 7)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣 相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
21): 鄰位甲氧基苯胺 / O-ANISIDINE (CAS NO.: 000090-04-0)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣 相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
22): 對氨基偶氮苯 / P-AMINOAZOBENZENE (CAS NO.: 000060-09-3)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣 相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
23): 2,4-二甲基苯胺 (CAS NO.: 000095- 68-1) / 4-AMINO-3-FLUOROPHENOL (CAS NO.: 87-62-7)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣 相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.
24): 對氨基偶氮苯 / P-AMINOAZOBENZENE (CAS NO.: 000060-09-3)	mg/kg	本測試參考LMBG 82.02-2方法, 以氣 相層析質譜儀檢測 / With reference to LMBG 82.02-2. Analysis was performed by GC/MS.	3	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 8 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
臭氣危氣物ODCs定量分析 / CFC's (Chlorofluorocarbons)	---	---	---	---
Group I	---	---	---	---
Chlorofluorocarbon-11 (CAS NO.: 000075-69-4)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-12 (CAS NO.: 000075-71-8)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-113 (CAS NO.: 000076-13-1)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-114 (CAS NO.: 000076-14-2)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-115 (CAS NO.: 000076-15-3)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Group III	---	---	---	---
Chlorofluorocarbon-13 (CAS NO.: 000075-72-9)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-111 (CAS NO.: 000354-56-3)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-112 (CAS NO.: 000076-12-0)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 9 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
Chlorofluorocarbon-211 (CAS NO.: 135401-87-5)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-212 (CAS NO.: 076564-99-3)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-213 (CAS NO.: 060285-54-3)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-214 (CAS NO.: 002268-46-4)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-215 (CAS NO.: 000076-17-5)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-216 (CAS NO.: 001652-80-8)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-217 (CAS NO.: 000422-86-6)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
海龍 (Halons)	---	---	---	---
Halon-1211 (CAS NO.: 000353-59-3)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 10 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
Halon-1301 (CAS NO.: 000075-63-8)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Halon-2402 (CAS NO.: 000124-73-1)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
臭氣危氧化物ODCs (HCFCs)定量分析 / HCFC's (Hydrogenated chlorofluorocarbons)	---	---	---	---
Hydrochlorofluorocarbon-21 (CAS NO.: 000075-43-4)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-22 (CAS NO.: 000075-45-6)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-31 (CAS NO.: 000593-70-4)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-121 (CAS NO.: 000354-14-3)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-122 (CAS NO.: 000354-21-2)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-123 (CAS NO.: 000306-83-1)	mg/kg	參考 US EPA 5021方法, 以氣相層析 質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 11 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
Hydrochlorofluorocarbon-124 (CAS NO.: 002837-89-0)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-131 (CAS NO.: 000359-28-4)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-131b (CAS NO.: 000471-43-2)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-133a (CAS NO.: 000075-88-7)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-141b (CAS NO.: 001717-00-6)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-221	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-222 (CAS NO.: 000422-30-0)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-223	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-224	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 12 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
Hydrochlorofluorocarbon-225ca (CAS NO.: 000422-56-0)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-225cb (CAS NO.: 000507-55-1)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-226 (CAS NO.: 000431-87-8)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-231	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-232	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-233	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-234	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-235 (CAS NO.: 013838-16-9)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-241	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 13 of 17



測試項目 (Test Item)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
Hydrochlorofluorocarbon-242	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-243 (CAS NO.: 000338-75-0)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-244	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-251	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-252	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-253 (CAS NO.: 000354-06-1)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-261 (CAS NO.: 000420-97-3)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-262 (CAS NO.: 000420-99-5)	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.
Hydrochlorofluorocarbon-271	mg/kg	參考 US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021. Analysis was performed by GC/MS.	1	n.d.

測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 14 of 17



測試項目 (Test Item)	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, Ed. 1 111/54/CDV 方法, 以氣相層析儀/質譜儀檢測多 溴聯苯和多溴聯苯醚含量. / With reference to IEC 62321, Ed.1 111/54/CDV. Determination of PBB and PBDE 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.
多溴聯苯醚總和 (一至九溴) / Sum of PBDEs (Mono to Nona) (Note 4)			-	n.d.
一溴聯苯醚 / Monobromobiphenyl ether			5	n.d.
二溴聯苯醚 / Dibromobiphenyl ether			5	n.d.
三溴聯苯醚 / Tribromobiphenyl ether			5	n.d.
四溴聯苯醚 / Tetrabromobiphenyl ether			5	n.d.
五溴聯苯醚 / Pentabromobiphenyl ether			5	n.d.
六溴聯苯醚 / Hexabromobiphenyl ether			5	n.d.
七溴聯苯醚 / Heptabromobiphenyl ether			5	n.d.
八溴聯苯醚 / Octabromobiphenyl ether			5	n.d.
九溴聯苯醚 / Nonabromobiphenyl ether			5	n.d.
十溴聯苯醚 / Decabromobiphenyl ether			5	n.d.
多溴聯苯醚總和 (一至十溴) / Sum of PBDEs (Mono to Deca)			-	n.d.

- Note :
1. mg/kg = ppm
 2. n.d. = Not Detected / 未檢出
 3. MDL = Method Detection Limit / 方法偵測極限值
 4. According to 2005/717/EC DecaBDE is exempt.
 根據2005年10月13日歐盟會議公佈2005/717/EC, 修訂2002/95/EC內容, 通過解除
 高分子材質中十溴聯苯醚之使用限制。
 5. "-" = Not Regulated / 無規格值
 6. "---" = Not Conducted / 未測項目
 7. The MDL is 5ppm for the single compound of CP /
 若為氯化石蠟中單一化合物, 則偵測極限為5ppm

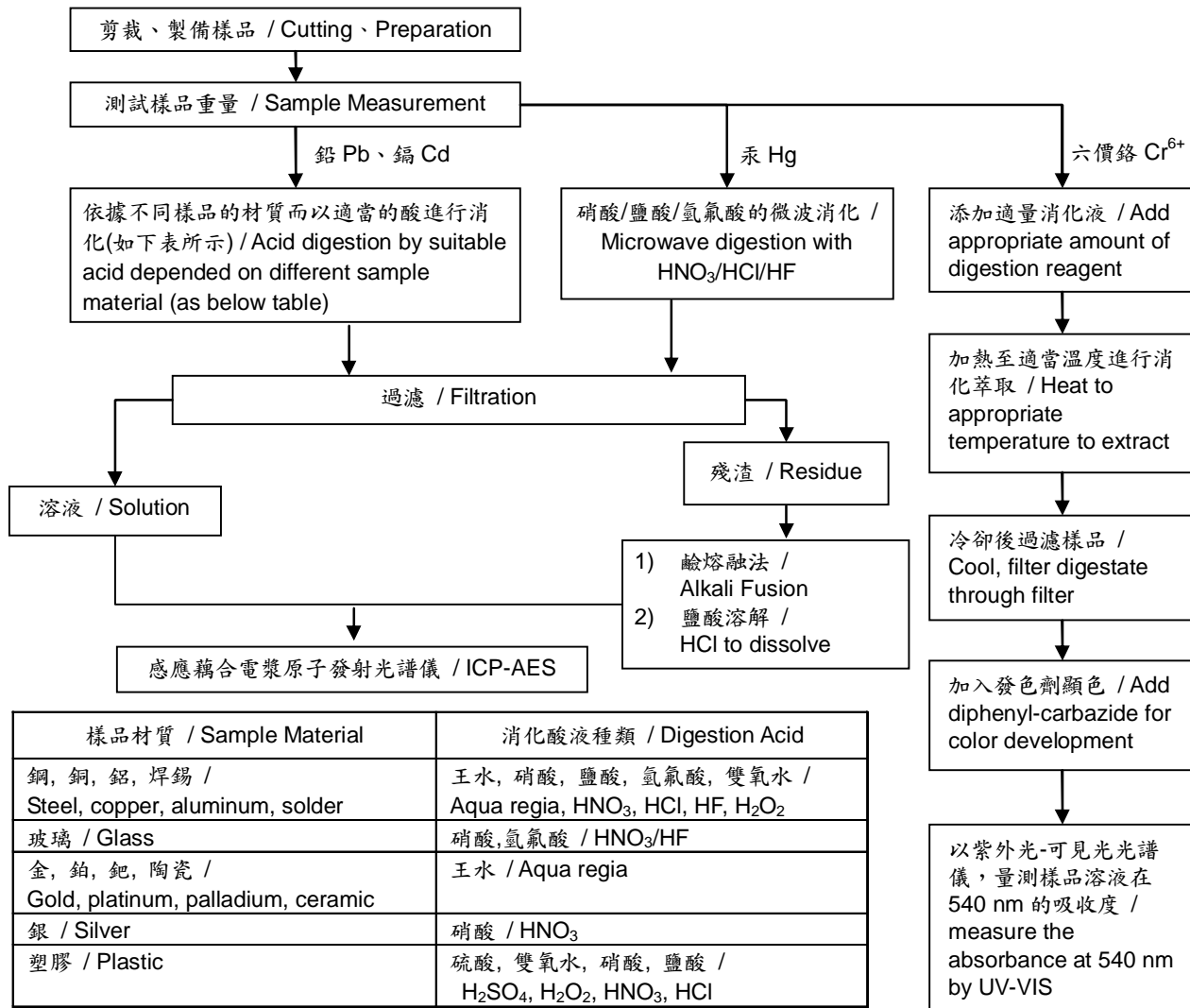
測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 15 of 17



- 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：張啓興 / Name of the person who made measurement: Troy Chang
- 3) 測試負責人：葉禮源 / Name of the person in charge of measurement: Daniel Yeh



樣品材質 / Sample Material	消化酸液種類 / Digestion Acid
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, 鉑, 鈀, 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

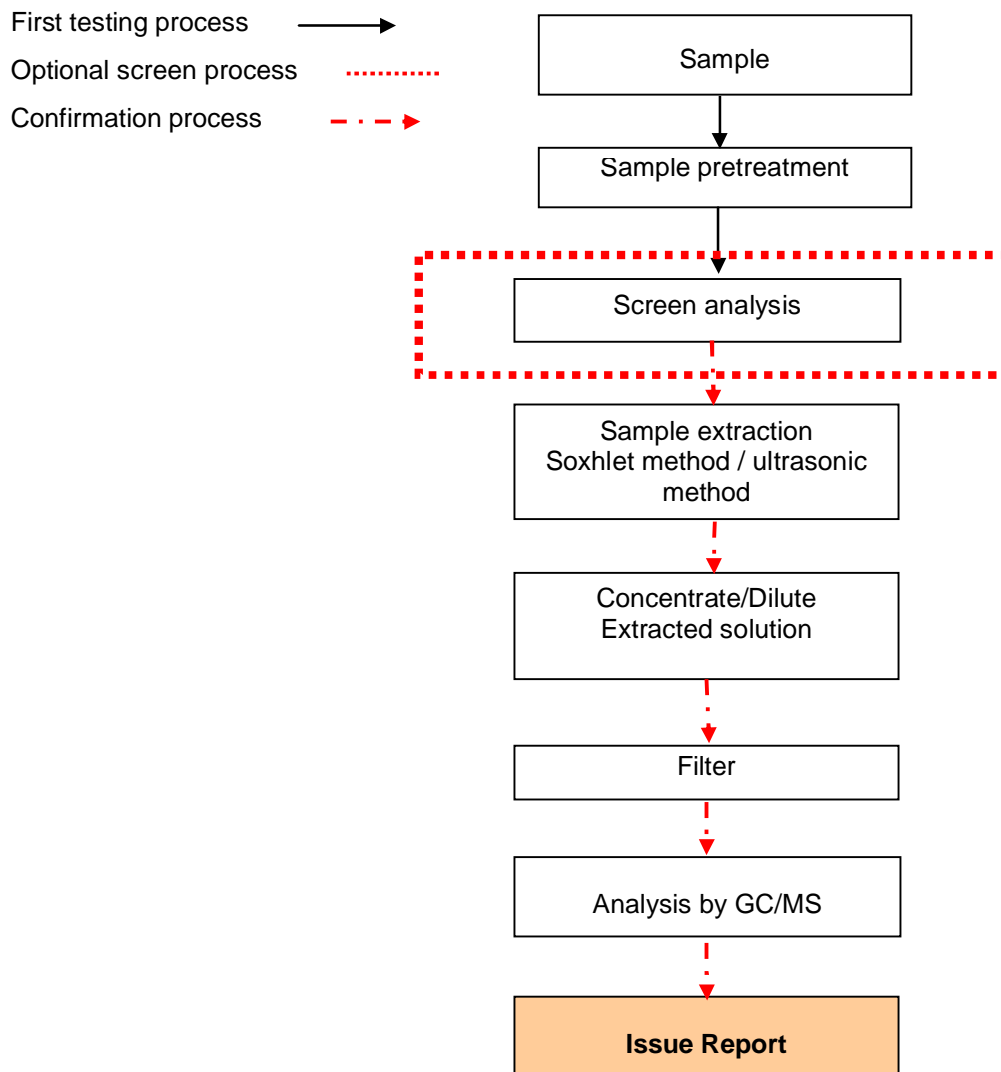
測試報告

華上光電股份有限公司
 ARIMA OPTOELECTRONICS CORP.
 桃園縣大溪鎮南興里仁和路2段349號7F
 7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620
 日期 : 2007/04/30
 頁數 : 16 of 17



PBB/PBDE analytical FLOW CHART



測試報告

華上光電股份有限公司

ARIMA OPTOELECTRONICS CORP.

桃園縣大溪鎮南興里仁和路2段349號7F

7 TH, NO. 349, SEC. 2, RENHE ROAD, DASHI, TAOYUAN, TAIWAN, R. O. C.

號碼 : CE/2007/45620

日期 : 2007/04/30

頁數 : 17 of 17



** 報告結尾 **