

**Test Report** 

測試結果(Test Results)

號碼(No.): ETR20A01397 日期(Date): 19-Oct-2020 頁數(Page): 1 of 9

立碁電子工業股份有限公司 (LIGITEK ELECTRONICS CO., LTD.) 新北市樹林區博愛街238號 (NO. 238, BO-AI ST., SHULIN DISTRICT, NEW TAIPEI CITY 238, TAIWAN R. O. C.)

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):

送樣廠商(Sample Submitted By) : 立碁電子工業股份有限公司 (LIGITEK ELECTRONICS CO., LTD.)

樣品名稱(Sample Name) : SMD LED 樣品型號(Style/Item No.) : SMD SERIES

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

收件日(Sample Receiving Date) : 12-Oct-2020

測試期間(Testing Period) : 12-Oct-2020 to 19-Oct-2020

**測試需求(Test Requested)** : (1) 依據客戶指定,參考RoHS 2011/65/EU Annex II及其修訂指令(EU) 2015/863測

試DBP, BBP, DEHP, DIBP。 (As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine

DBP, BBP, DEHP, DIBP contents in the submitted sample(s).)

(2) 其他測試項目請見下一頁。 (Please refer to next pages for the other item(s).)

請參閱下一頁 (Please refer to following pages.)

Troy Chang Manager Te h SGS
Signed for and on behalf
SGS TAIWAN LTD.
Chemical Laboratory - Taipei



PIN CODE: D764B8B9



## **Test Report**

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立碁電子工業股份有限公司 (LIGITEK ELECTRONICS CO., LTD.) 新北市樹林區博愛街238號 (NO. 238, BO-AI ST., SHULIN DISTRICT, NEW TAIPEI CITY 238, TAIWAN R. O. C.)

#### 測試部位敘述 (Test Part Description)

No.1 : SMD LED

#### 測試結果 (Test Results)

##苯二甲酸二丁音 (DBP) (Dibutyl phthalate (DBP)) (CAS No.: 84-74-2) ##苯二甲酸 (DBP) (CAS No.: 85-68-7) ##苯二甲酸二溴子酯 (DBP)) (CAS No.: 85-68-7) ##苯二甲酸二溴子酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1) ##苯二甲酸二溴子酯 (DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0) ##苯二甲酸二异子酯 (DINP) (Din-octyl phthalate (DINP)) (CAS No.: 117-84-0) ##苯二甲酸二异子酯 (DINP) (Din-octyl phthalate (DINP)) (CAS No.: 84-69-5) ##苯二甲酸二异子酯 (DINP) (Diisobutyl phthalate (DINP)) (CAS No.: 84-69-5) ##苯二甲酸二异己酯 (Din-hexyl phthalate (DINP)) (CAS No.: 84-75-3) ** 全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 1763-23-1 and its salts) (CAS No.: 1763-23-1 and its salts) (CAS No.: 335-67-1 and its salts) (CAS No.: 84-69-5) ##茶可能 (Disphenol A) (CAS No.: 80-05-7) ## \$\frac{8}{8}\$\frac{8}{8}\$\frac{8}{8}\$\frac{1}{8}\$\frac{1}{9}\$\frac{1}{1}\$\frac{1}{8}\$\frac{1}{9}\$\frac{1}{1}\$\f	測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
phthalate (DBP)) (CAS No.: 84-74-2)	数苯二甲酸二丁酯 (DRD) (Dibuty)		ma/ka	50	No.1
##苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP)) (CAS No.: 85-68-7)	1		пу/ку	30	n.u.
phthalate (BBP)) (CAS No.: 85-68-7)  #本二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP)) (CAS No.: 117-81-7)  #本二甲酸二異癸酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1)  #本二甲酸二異壬酯 (DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0)  #本二甲酸二正辛酯 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)  #本二甲酸二异丁酯 (DIBP) (Diisobutyl phthalate (DINP)) (CAS No.: 117-84-0)  #本二甲酸二正己酯 (Di-n-hexyl phthalate) (CAS No.: 84-69-5)  #本二甲酸二正己酯 (Di-n-hexyl phthalate) (CAS No.: 84-75-3)  全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 335-67-1 and its	1 11 1		mg/kg	50	n.d.
(2-ethylhexyl) phthalate (DEHP)) (CAS No.: 117-81-7)   *** *******************************			3. 3		
No.: 117-81-7	, , , , , ,		mg/kg	50	n.d.
##苯二甲酸二異癸酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1)  ##苯二甲酸二異壬酯 (DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0)  ##苯二甲酸二正辛酯 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)  ##苯二甲酸二异丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)  ##苯二甲酸二正己酯 (Di-n-hexyl phthalate) (CAS No.: 84-75-3)  全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 1763-23-1 and its salts) (CAS No.: 335-67-1 and its salts) (CAS No.: 335-67-1 and its salts) (CAS No.: 335-67-1 and its salts) (EAS No.: 335-67-1 and					
Phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1)	,				
例の	1		mg/kg	50	n.d.
郷苯二甲酸二異王龍 (DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0)2017, analysis was performed by GC/MS.)mg/kg50n.d.郷苯二甲酸二正辛龍 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)mg/kg50n.d.郷苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)mg/kg50n.d.郷苯二甲酸二正己酯 (Di-n-hexyl phthalate) (CAS No.: 84-75-3)参考CEN/TS 15968: 2010 · 以液相層析串聯 質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)mg/kg50n.d.全氟辛酸及其鹽類 (PFOA and its salts) (CAS No.: 335-67-1 and its salts)参考CEN/TS 15968: 2010 · 以液相層析串聯質譜儀分析。(With reference to RSTS-CHEM-239-1 · 以液相層析串聯質譜儀分析。(With reference to RSTS-CHEM-239-1 · 以液相層析串聯質譜儀分析。(With reference to RSTS-CHEM-239-1 · Janalysis was performed bymg/kg0.01n.d.	I ·				
Phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0)		<b>'</b>	ma/ka	ГΛ	n d
0, 68515-48-0)	` ' '	2017, analysis was performed by GC/Wis.)	тід/кд	50	n.a.
# 第本二甲酸二正辛酯 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)   # 第本二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)   # 第本二甲酸二正己酯 (Di-n-hexyl phthalate) (CAS No.: 84-75-3)   全氟辛烷磺酸及其鹽類 (PFOS and its salts)   (CAS No.: 1763-23-1 and its salts)   全氟辛酸及其鹽類 (PFOA and its salts)   (CAS No.: 335-67-1 and its salts)   (CAS No.: 335-67-1 and its salts)   雙酚A (Bisphenol A) (CAS No.: 80-05-7)   参考RSTS-CHEM-239-1・以液相層析串聯質	11				
phthalate (DNOP)) (CAS No.: 117-84-0) 鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5) 鄰苯二甲酸二正己酯 (Di-n-hexyl phthalate) (CAS No.: 84-75-3) 全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 1763-23-1 and its salts) (营議分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)  雙酚A (Bisphenol A) (CAS No.: 80-05-7)  参考RSTS-CHEM-239-1・以液相層析串聯質			ma/ka	50	n d
phthalate (DIBP)) (CAS No.: 84-69-5)  鄰苯二甲酸三正己酯 (Di-n-hexyl phthalate) (CAS No.: 84-75-3)  全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 1763-23-1 and its salts)  全氟辛酸及其鹽類 (PFOA and its salts) (CAS No.: 335-67-1 and its salts)  雙酚A (Bisphenol A) (CAS No.: 80-05-7) 参考RSTS-CHEM-239-1,Analysis was performed by iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	1		1119, 119	30	11.0.
### Temper Temp	鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl		mg/kg	50	n.d.
phthalate) (CAS No.: 84-75-3) 全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 1763-23-1 and its salts) 全氟辛酸及其鹽類 (PFOA and its salts) (CAS No.: 335-67-1 and its salts)  雙酚A (Bisphenol A) (CAS No.: 80-05-7)  ****  ***  ***  **  **  **  **  **	phthalate (DIBP)) (CAS No.: 84-69-5)		3 3		
全氟辛烷磺酸及其鹽類 (PFOS and its salts)	鄰苯二甲酸二正己酯 (Di-n-hexyl		mg/kg	50	n.d.
(CAS No.: 1763-23-1 and its salts) 質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by (CAS No.: 335-67-1 and its salts)	1 , ,				
全氟辛酸及其鹽類 (PFOA and its salts) (CAS No.: 335-67-1 and its salts) 雙酚A (Bisphenol A) (CAS No.: 80-05-7) 常考RSTS-CHEM-239-1 · 以液相層析串聯質	` '	,	mg/kg	0.01	n.d.
(CAS No.: 335-67-1 and its salts) LC/MS/MS.) UC/MS/MS.) BT I CAS No.: 80-05-7) 参考RSTS-CHEM-239-1 · 以液相層析串聯質		•			
雙酚A (Bisphenol A) (CAS No.: 80-05-7) 参考RSTS-CHEM-239-1·以液相層析串聯質 mg/kg 1 7.34 譜儀分析。(With reference to RSTS-CHEM-239-1, analysis was performed by	` ` '	1	mg/kg	0.01	n.d.
譜儀分析。(With reference to RSTS-CHEM- 239-1, analysis was performed by					
239-1, analysis was performed by	雙酚A (Bisphenol A) (CAS No.: 80-05-7)		mg/kg	1	/.34
		· ·			
		LC/MS/MS.)			

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測試項目	測試方法	單位	MDL	結果
(Test Items)	(Method)	(Unit)		(Result)
				No.1
聚氯乙烯 (Polyvinyl chloride) (PVC)	參考ASTM E1252: 2013·以傅立葉轉換紅外	**	-	Negative
	線光譜儀及焰色法分析。(With reference to			
	ASTM E1252: 2013, analysis was			
	performed by FT-IR and Flame Test.)			
石綿 (Asbestos)				
陽起石綿 (Actinolite) (CAS No.: 77536-		%	-	Negative
66-4)				
褐石綿/鐵石綿 (Amosite) (CAS No.:	參考EPA 600/R-93/116: 1993 / 立體顯微鏡	%	=	Negative
12172-73-5)	(SM)·分散染色式偏光顯微鏡 (DS-PLM)及X			
斜方角閃石綿 (Anthophyllite) (CAS No.:	光繞射光譜分析法 (XRD)。(With reference	%	=	Negative
77536-67-5)	to EPA 600/R-93/116: 1993, analysis was			
白石綿/溫石綿 (Chrysotile) (CAS No.:	performed by Stereo Microscope (SM),	%	-	Negative
12001-29-5)	Dispersion Staining Polarized Light			
青石綿 (Crocidolite) (CAS No.: 12001-	Microscope (DS-PLM) and X-ray	%	-	Negative
28-4)	Diffraction Spectrometer (XRD).)			
透閃石綿 (Tremolite) (CAS No.: 77536-		%	-	Negative
68-6)				

#### 備註(Note):

- 1. mg/kg = ppm; 0.1wt% = 1000ppm
- 2. MDL = Method Detection Limit (方法偵測極限值)
- 3. n.d. = Not Detected (未檢出); 小於MDL / Less than MDL
- 4. "-" = Not Regulated (無規格值)
- 5. \*\*= Qualitative analysis (No Unit) 定性分析(無單位)
- 6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
- 7. 石綿定性分析試驗範圍: <0.1%~100%,石綿鑑定的判定基準是以檢出含有石綿纖維為『Positive』,未檢出石綿纖維為『Negative』。(Testing range of asbestos qualitative analysis is from less than 0.1% to 100%. The judgment criterion: asbestos fibers being found is shown as "Positive"; asbestos fibers not being found is shown as "Negative".)
- 8. 全氟辛烷磺酸及其鹽類包含 (PFOS and its salts including): CAS No.: 29081-56-9, 2795-39-3, 29457-72-5, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7.
- 9. 全氟辛酸及其鹽類包含 (PFOA and its salts including): CAS No.: 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0.



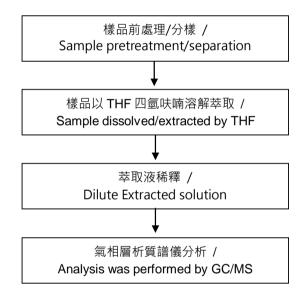
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#### 可塑劑分析流程圖 / Analytical flow chart - Phthalate

【測試方法/Test method: IEC 62321-8】



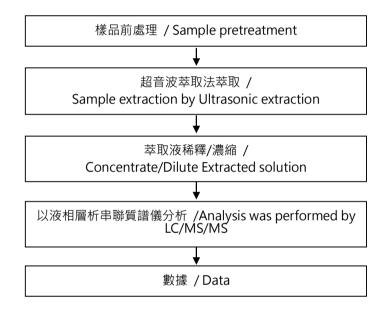


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#### 全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS



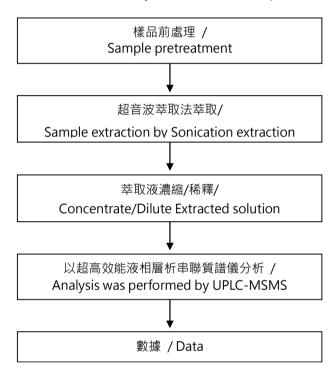


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#### 雙酚A分析流程圖 / Analytical flow chart - Bisphenol A



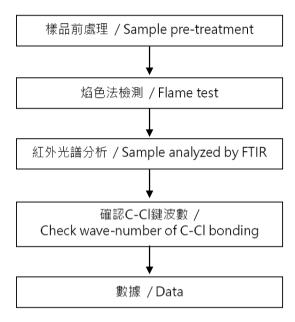


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#### 聚氯乙烯物質判定分析流程圖 / Analysis flow chart - PVC





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#### 石綿鑑定分析流程圖 / Analysis flow chart for determination of Asbestos

#### 【參考方法(Reference method): EPA 600/R-93/116】 取樣 / Sampling 分樣及保存 / Transportation and Storage 分析樣品的製備 / Preparation of primary analytical sample 立體顯微鏡偵測 / Examination by stereomicroscope (SM) 分散染色式偏光顯微鏡石綿鑑定 / Asbestos identification by dispersion staining polarized light microscope (DS-PLM) 偏光顯微鏡有疑慮時或是品保確認時,繼續後續鑑定 / Continue when problems are encountered with DS-PLM and/or for quality assurance purposes 移除干擾基質 / Interference matrix removal X 光繞射光譜石綿鑑定 / 分散染色式偏光顯微鏡石綿鑑定 / Asbestos identification by Asbestos identification by X-ray dispersion staining polarized light diffraction spectrometer 未含有石綿纖維 / Asbestos fiber is 含有石綿纖維 / Asbestos fiber is absent present 不含有石綿 / Not containing 含有石綿 / Containing Asbestos / 陽性 / Positive Asbestos / 陰性 / Negative



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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.)

#### ETR20A01397



\*\* 報告結尾 (End of Report) \*\*