

測試報告	號碼(No.) : CE/2016/56273	日期(Date) : 2016/06/03
Test Report	號碼(NO.): CE/2010/30273	日期(Date): 2010/00/03
鴻星電子股份有限公司 HOSONIC ELECTRONIC CO.,	ITD	

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鴻星電子股份有限公司 HOSONIC ELECTRONIC CO., LTD. 新北市樹林區俊英街84巷23-1號 NO.23-1, LN.84, JUNYING ST., SHULIN DIST., NEW TAIPEI CITY 23863, TAIWAN

以下測試樣品係由申請廠商所提供及 behalf of the applicant as):	確認	(The following sample(s) was/were submitted and identified by/on
送樣廠商(Sample Submitted By)	:	鴻星電子股份有限公司(HOSONIC ELECTRONIC CO., LTD.)
樣品名稱(Sample Description)	:	SMD CRYSTAL SERIES
樣品型號(Style/Item No.)	:	SEAM SEALING CRYSTAL
收件日期(Sample Receiving Date)	:	2016/05/30
測試期間(Testing Period)	:	2016/05/30 TO 2016/06/03

测试结果(Test Results) : 請見下一頁 (Please refer to next pages).



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<u>測試結果(Test Results)</u>

測試部位(PART NAME)No.1 : 整體混測 (MIXED ALL PARTS)

测試項目 (Toot Itama)	單位 (IIni+)	测試方法 (Nothed)	方法偵測 極限值	結果 (Result)
(Test Items)	(Unit)	(Method)	(MDL)	No. 1
鎬 / Cadmium (Cd)	mg/kg	参考IEC 62321-5 (2013),以感應耦合 電漿原子發射光譜儀檢測. / With reference to IEC 62321-5 (2013) and performed by ICP-AES.	2	n. d.
鉛 / Lead (Pb)	mg/kg	參考IEC 62321-5 (2013),以感應耦合 電漿原子發射光譜儀檢測. / With reference to IEC 62321-5 (2013) and performed by ICP-AES.	2	n. d.
汞 / Mercury (Hg)	mg/kg	參考IEC 62321-4 (2013),以感應耦合 電漿原子發射光譜儀檢測. / With reference to IEC 62321-4 (2013) and performed by ICP-AES.	2	n. d.
六價鉻 / Hexavalent Chromium Cr(VI)	mg/kg	参考IEC 62321 (2008),以UV-VIS檢 測. / With reference to IEC 62321 (2008) and performed by UV-VIS.	2	n. d.
绨 / Antimony (Sb)	mg/kg	參考US EPA 3052 (1996),以感應耦合 電漿原子發射光譜儀檢測. / With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES.	2	n. d.
砷 / Arsenic (As)	mg/kg	參考US EPA 3052 (1996),以感應耦合 電漿原子發射光譜儀檢測. / With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES.	2	n. d.



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Test Report 鴻星電子股份有限公司

HOSONIC ELECTRONIC CO., LTD. 新北市樹林區俊英街84巷23-1號 NO.23-1, LN.84, JUNYING ST., SHULIN DIST., NEW TAIPEI CITY 23863, TAIWAN

測試項目 (Test Items)	單位 (Unit)	测試方法 (Method)	方法偵測 極限值 (MDL)	結果(Result) No.1
鈹 / Beryllium (Be)	mg/kg	参考US EPA 3052 (1996),以感應耦合 電漿原子發射光譜儀檢測. / With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES.	2	n. d.
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	参考US EPA 3550C (2007),以液相層 析/質譜儀檢測. / With reference to US EPA 3550C (2007). Analysis was performed by LC/MS.	10	n. d.
全氟辛酸 / PFOA (CAS No.: 335-67-1)	mg/kg	参考US EPA 3550C (2007),以液相層 析/質譜儀檢測. / With reference to US EPA 3550C (2007). Analysis was performed by LC/MS.	10	n. d.
鄰苯二甲酸二異丁酯 / DIBP (Di- isobutyl phthalate) (CAS No.: 84-69- 5)	mg/kg		50	n. d.
鄰苯二甲酸二丁酯 / DBP(Dibuty1 phthalate)(CAS No.: 84-74-2)	mg/kg		50	n. d.
鄰苯二甲酸丁苯甲酯 / BBP(Butyl Benzyl phthalate)(CAS No.: 85-68-7)	mg/kg		50	n. d.
鄰苯二甲酸二 (2-乙基己基)酯 / DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg	參考IEC 62321-8/CD (2013),以氣相 層析儀/質譜儀檢測. / With reference to IEC 62321-8/CD	50	n. d.
鄰苯二甲酸二正辛酯 / DNOP(Di-n- octyl phthalate)(CAS No.: 117-84-0)	mg/kg	(2013). Analysis was performed by GC/MS.	50	n. d.
鄰苯二甲酸二異壬酯 / DINP (Di- isononyl phthalate) (CAS No.: 28553- 12-0; 68515-48-0)	mg/kg		50	n. d.
鄰苯二甲酸二異癸酯 / DIDP(Di- isodecyl phthalate)(CAS No.: 26761- 40-0; 68515-49-1)	mg/kg		50	n. d.

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鴻星電子股份有限公司

HOSONIC ELECTRONIC CO., LTD. 新北市樹林區俊英街84巷23-1號 NO. 23-1, LN. 84, JUNYING ST., SHULIN DIST., NEW TAIPEI CITY 23863, TAIWAN

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
鄰苯二甲酸二乙酯 / DEP(Di-ethyl phthalate)(CAS No.: 84-66-2)	mg/kg		50	n. d.
鄰苯二甲酸二甲酯 / DMP(Di-methyl phthalate)(CAS No.: 131-11-3)	mg/kg		50	n. d.
鄰苯二甲酸二異辛酯 / DIOP (Di- isooctyl phthalate) (CAS No.: 27554- 26-3)	mg/kg		50	n. d.
鄰苯二甲酸二丙酯 / DPrP(Di-propyl phthalate)(CAS No.: 131-16-8)	mg/kg		50	n. d.
鄰苯二甲酸二環己酯 / DCHP(Di- cyclohexyl phthalate)(CAS No.: 84- 61-7)	mg/kg	參考IEC 62321-8/CD(2013),以氣相 層析儀/質譜儀檢測. / With reference to IEC 62321-8/CD	50	n. d.
鄰苯二甲酸二戊酯 / Di-n-pentyl phthalate (CAS No.: 131-18-0)	mg/kg	(2013). Analysis was performed by GC/MS.	50	n. d.
鄰苯二甲酸二正己酯 / DNHP(Di-n- hexyl phthalate)(CAS No.: 84-75-3)	mg/kg		50	n. d.
鄰苯二甲酸二甲苯酯 / DBzP (Dibenzyl phthalate) (CAS No.: 523-31-9)	mg/kg		50	n. d.
鄰苯二甲酸二苯酯 / DPhP(Diphenyl phthalate)(CAS No.: 84-62-8)	mg/kg		50	n. d.
鄰苯二甲酸二正壬酯 / DNNP(Di-n- nonyl phthalate)(DNP)(CAS No.: 84- 76-4)	mg/kg		50	n. d.
六溴環十二烷及所有主要被辨別出的異構物 / Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α – HBCDD, β – HBCDD, γ – HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	参考IEC 62321 (2008),以氣相層析/ 質譜儀檢測. / With reference to IEC 62321 (2008). Analysis was performed by GC/MS.	5	n. d.



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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	結果 (Result)
(1000 100m0)	(0111)		(MDL)	No. 1
多溴聯苯總和 / Sum of PBBs	mg/kg		_	n. d.
一溴聯苯 / Monobromobiphenyl	mg/kg		5	n. d.
二溴聯苯 / Dibromobiphenyl	mg/kg		5	n. d.
三溴聯苯 / Tribromobiphenyl	mg/kg		5	n. d.
四溴聯苯 / Tetrabromobiphenyl	mg/kg		5	n. d.
五溴聯苯 / Pentabromobiphenyl	mg/kg		5	n. d.
六溴聯苯 / Hexabromobiphenyl	mg/kg		5	n. d.
七溴聯苯 / Heptabromobiphenyl	mg/kg		5	n. d.
八溴聯苯 / Octabromobiphenyl	mg/kg		5	n. d.
九溴聯苯 / Nonabromobiphenyl	mg/kg	參考IEC 62321-6 (2015),以氣相層析	5	n. d.
十溴聯苯 / Decabromobiphenyl	mg/kg	/質譜儀檢測. / With reference to	5	n. d.
多溴聯苯醚總和 / Sum of PBDEs	mg/kg	IEC 62321-6 (2015) and performed	-	n. d.
一溴聯苯醚 / Monobromodiphenyl ether	mg/kg	by GC/MS.	5	n. d.
二溴聯苯醚 / Dibromodiphenyl ether	mg/kg		5	n. d.
三溴聯苯醚 / Tribromodiphenyl ether	mg/kg		5	n. d.
四溴聯苯醚 / Tetrabromodiphenyl ether	mg/kg		5	n. d.
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg		5	n. d.
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg		5	n. d.
七溴聯苯醚 / Heptabromodiphenyl ether	mg/kg] [5	n. d.
八溴聯苯醚 / Octabromodiphenyl ether	mg/kg] [5	n. d.
九溴聯苯醚 / Nonabromodiphenyl ether	mg/kg] [5	n. d.
十溴聯苯醚 / Decabromodiphenyl ether	mg/kg] [5	n. d.

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消星電子股份有限公司 HOSONIC ELECTRONIC CO., LTD.

新北市樹林區俊英街84巷23-1號

NO.23-1, LN.84, JUNYING ST., SHULIN DIST., NEW TAIPEI CITY 23863, TAIWAN

测試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
ь ж. / П-1				No. 1
鹵素 / Halogen				
鹵素(氟)/ Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg		50	n. d.
鹵素(氯)/ Halogen-Chlorine(C1) (CAS No.: 22537-15-1)	mg/kg	参考BS EN 14582(2007),以離子層析 儀分析. / With reference to BS EN	50	n. d.
鹵素(溴)/ Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg	14582 (2007). Analysis was performed by IC.	50	n. d.
鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg		50	n. d.

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. 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別單一材質的含量. (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): 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1 μ g/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 $1\mu g/m^2$.)

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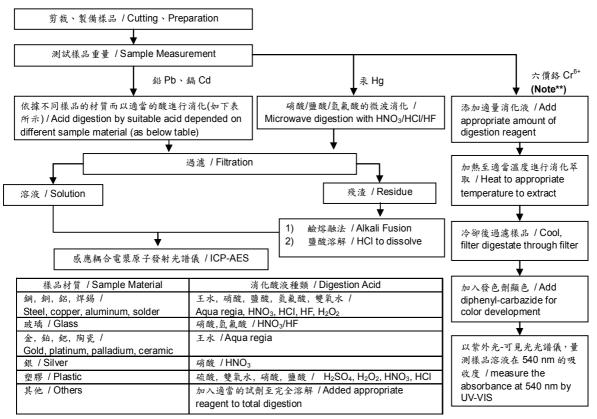
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根據以下的流程圖之條件,樣品已完全溶解。(六價鉻測試方法除外) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded) ■ 测試人員:王志瑋 / Technician : JR Wang

■ 測試負責人:張啟興 / Supervisor: Troy Chang



Note** (For IEC 62321)

(1) 針對非金屬材料加入鹼性消化液,加熱至 90~95℃萃取. / For non-metallic material, add alkaline digestion reagent and heat to 90~95℃.

(2) 針對金屬材料加入純水,加熱至沸腾萃取. / For metallic material, add pure water and heat to boiling.



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> 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.

- 測試人員:王志瑋 / Technician: JR Wang
- 測試負責人:張啟興 / Supervisor: Troy 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)

剪裁、製備樣品 / Cutting、Preparation				
· · · · · · · · · · · · · · · · · · ·				
測試樣品重量 / Sample Measurement				
	↓			
依據不同樣品的材質而以適當的酸進行消化(如下表所示) / Acid digestion by suitable acid depended on different sample material (as below table)				
	▶			
過濾 /	Filtration			
溶液 / Solution	殘渣 / Residue			
▲ 感應耦合電漿原子發射光譜儀 /	1) 鹼熔融法 / Alkali Fusion 2) 鹽酸溶解 / HCl to dissolve			
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 / HNO3			
塑膠 / Plastic	硫酸,雙氧水,硝酸,鹽酸 / H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCI			
其他 / Others	加入適當的試劑至完全溶解 / Added appropriate reagent to total digestion			



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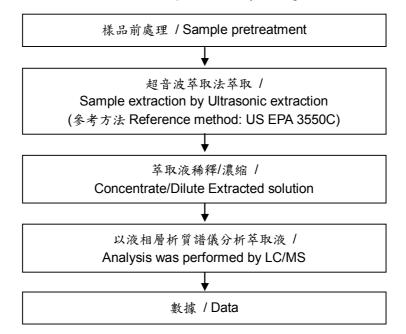
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全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS

- 測試人員:翁賜彬 / Technician: Roman Wong
- 測試負責人:張啟興 / Supervisor: Troy Chang



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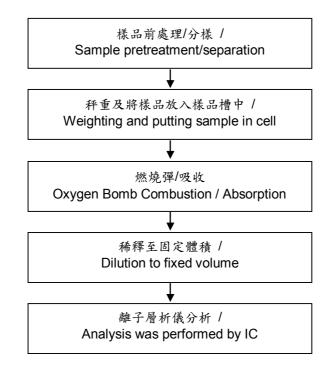
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<u> 鹵素分析流程圖 / Analytical flow chart - Halogen</u>

- 測試人員:陳恩臻 / Technician: Rita Chen
- 測試負責人:張啟興 / Supervisor: Troy Chang





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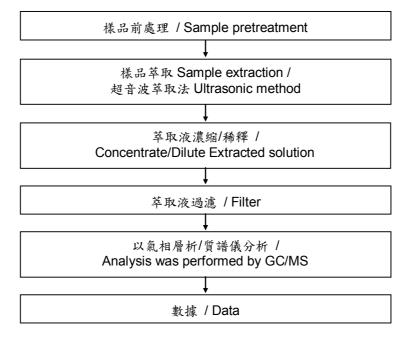
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD

- 測試人員: 翁賜彬 / Technician: Roman Wong
- 測試負責人:張啟興 / Supervisor: Troy Chang





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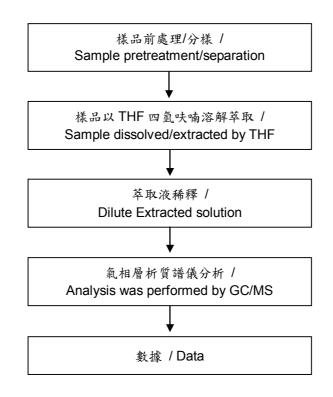
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<u>可塑劑分析流程圖 / Analytical flow chart - Phthalate</u>

- 測試人員:徐毓明 / Technician: Andy Shu
- 測試負責人:張啟興 / Supervisor nt: Troy Chang

【测試方法/Test method: IEC 62321-8】





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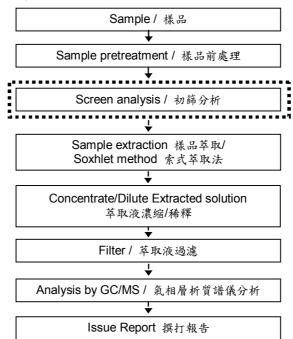
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<u>多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBB/PBDE</u>

測試人員: 翁賜彬 / Technician: Roman Wong

測試負責人:張啟興 / Supervisor: Troy 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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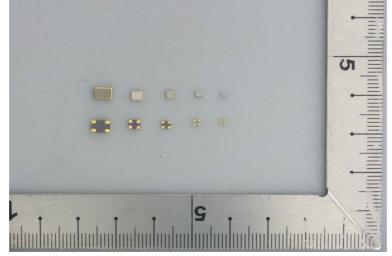
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鴻星電子股份有限公司 HOSONIC ELECTRONIC CO., LTD. 新北市樹林區俊英街84巷23-1號 NO. 23-1, LN. 84, JUNYING ST., SHULIN DIST., NEW TAIPEI CITY 23863, TAIWAN

> * 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.)

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** 報告結尾 (End of Report) **