



Test Report

Number : TWNC00293415

Applicant 申請商: Holy Stone Enterprise Co., Ltd.
No. 56, Lane 90, Kung Wu Road,
Wu Lin Village, Lung Tan Hosing,
Tao Yuan County, Taiwan, R.O.C.

Date : Jan 11, 2013

Sample Description 樣品敘述:

One (1) Group Of Submitted Samples Said To Be :

以下測試樣品乃供應商所提供及確認 :

Sample Description : Multilayer Ceramic Chip Capacitor

樣品名稱

Style / Item No. : NPO Series

產品型號

Date Sample Received : Jan 04, 2013

收件日期

Date Test Started : Jan 05, 2013

開始測試日期

Test Conducted 測試執行 :

As requested by the applicant, for details please refer to attached pages.

依申請商之要求 , 細節請參考附頁

Authorized by:

On Behalf of Intertek Testing Services

Taiwan Limited



K. Y. Liang
Director



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Test Conducted

(I) Test Result Summary 測試結果：

<u>Test Item</u> 測試項目	<u>Unit</u> 單位	<u>Test Method</u> 測試方法	<u>Result 結果</u>	<u>MDL</u> 方法極限
			<u>Gray electronic component (mixed all parts)</u>	
Heavy Metal 重金屬				
Cadmium (Cd) content 鎘含量	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES. 參考 IEC 62321:2008，以微波消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	2
Lead (Pb) content 鉛含量	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES. 參考 IEC 62321:2008，以微波消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	2
Mercury (Hg) content 汞含量	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES. 參考 IEC 62321:2008，以微波消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	2
Chromium VI (Cr ⁶⁺) content 六價鉻含量	ppm	With reference to IEC 62321: 2008, by alkaline digestion and determined by UV-Vis Spectrophotometer. 參考 IEC 62321:2008，以鹼液消化並用紫外光-可見光分光光度計分析。	ND	1



Test Conducted

(I) Test Result Summary 測試結果 :

<u>Test Item</u> 測試項目	<u>Unit</u> 單位	<u>Test Method</u> 測試方法	<u>Result</u> 結果	<u>MDL</u> 方法極限
			<u>Gray electronic component (mixed all parts)</u>	
Polybrominated Biphenyls (PBBs) 多溴聯苯				
Monobrominated Biphenyls (MonoBB) 單溴聯苯	ppm	With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD. confirmation when necessary. 參考 IEC 62321: 2008，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效能液相層析-二極體陣列偵檢器進行確認。	ND	5
Dibrominated Biphenyls (DiBB) 二溴聯苯	ppm		ND	5
Tribrominated Biphenyls (TriBB) 三溴聯苯	ppm		ND	5
Tetrabrominated Biphenyls (TetraBB) 四溴聯苯	ppm		ND	5
Pentabrominated Biphenyls (PentaBB) 五溴聯苯	ppm		ND	5
Hexabrominated Biphenyls (HexaBB) 六溴聯苯	ppm		ND	5
Heptabrominated Biphenyls (HeptaBB) 七溴聯苯	ppm		ND	5
Octabrominated Biphenyls (OctaBB) 八溴聯苯	ppm		ND	5
Nonabrominated Biphenyls (NonaBB) 九溴聯苯	ppm		ND	5
Decabrominated Biphenyl (DecaBB) 十溴聯苯	ppm		ND	5



Test Conducted

(I) Test Result Summary 測試結果：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果	MDL 方法極限
			Gray electronic component (mixed all parts)	
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚				
Monobrominated Diphenyl Ethers (MonoBDE) 單溴聯苯醚	ppm	With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD. confirmation when necessary. 參考 IEC 62321: 2008，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效能液相層析-二極體陣列偵檢器進行確認。	ND	5
Dibrominated Diphenyl Ethers (DiBDE) 二溴聯苯醚	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE) 三溴聯苯醚	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE) 四溴聯苯醚	ppm		ND	5
Pentabrominated Diphenyl Ethers (PentaBDE) 五溴聯苯醚	ppm		ND	5
Hexabrominated Diphenyl Ethers (HexaBDE) 六溴聯苯醚	ppm		ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE) 七溴聯苯醚	ppm		ND	5
Octabrominated Diphenyl Ethers (OctaBDE) 八溴聯苯醚	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE) 九溴聯苯醚	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE) 十溴聯苯醚	ppm		ND	5
Halogen Content 鹵素含量				
Fluorine (F) 氟	ppm	With reference to EN 14582:2007 by calorimetric bomb with oxygen and determined by ion chromatography 參考EN 14582:2007，以氧彈燃燒集氣法並用離子層析儀分析。	ND	50
Chlorine (Cl) 氯	ppm		ND	50
Bromine (Br) 溴	ppm		ND	50
Iodine (I) 碘	ppm		ND	50



Test Conducted

(I) Test Result Summary 測試結果 :

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果	MDL 方法極限
			Gray electronic component (mixed all parts)	
Phthalates 鄰苯二甲酸酯				
Di (2-ethylhexyl) Phthalate (DEHP) 鄰苯二甲酸二 (2-乙基己基) 酯	ppm	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS. 參考 EN 14372: 2004，以溶劑萃取並用氣相層析質譜儀分析。	ND	50
Dibutyl Phthalate (DBP) 鄰苯二甲酸二丁酯	ppm		ND	50
Benzyl Butyl Phthalate (BBP) 鄰苯二甲酸苯基丁酯	ppm		ND	50
Di- (Iso-Nonyl) Phthalate (DINP) 鄰苯二甲酸二異壬酯	ppm		ND	50
Di- (Iso-Decyl) Phthalate (DIDP) 鄰苯二甲酸二異癸酯	ppm		ND	50
Di- (N-Octyl) Phthalate (DNOP) 鄰苯二甲酸二辛酯	ppm		ND	50
Others 其他				
Hexabromo cyclododecane (HBCDD) 六溴環十二烷	ppm	With reference to USEPA 3540C, by solvent extraction and determined by GC-MS. 參考 USEPA 3540C，以溶劑萃取並用氣相層析質譜儀分析。	ND	10
Perfluorooctane Sulfonates (PFOS) 全氟辛磺酸	ppm	With reference to CEN/TS 15968_2010, by solvent extraction and determined by LC-MS-MS. 參考 CEN/TS 15968_2010，以溶劑萃取並用液相層析串聯質譜儀分析。	ND	0.05
Perfluorooctanoic Acid (PFOA) 全氟辛酸	ppm	With reference to CEN/TS 15968_2010, by solvent extraction and determined by LC-MS-MS. 參考 CEN/TS 15968_2010，以溶劑萃取並用液相層析串聯質譜儀分析。	ND	0.05



Test Conducted

Remarks: ppm = parts per million based on weight of tested sample = mg/kg
備註 百萬分之一，依據測試樣品重量計算 = 毫克/公斤
ND = Not detected 未檢測出
MDL = Quantitation limit of testing method = 方法偵測極限

Responsibility of Chemist 分析人員 : Kevin Liu/ Irene Chiou/ Vico Lin

Date Sample Received 樣品收件日期 : Jan 04, 2013

Test Period 樣品測試期間 : Jan 05, 2013 To Jan 11, 2013

(II) RoHS Limits 限值:

Restricted Substances 限用物質	Limits 限值
Cadmium (Cd) content / 鎘含量	0.01% (100ppm)
Lead (Pb) content / 鉛含量	0.1% (1000ppm)
Mercury (Hg) content / 汞含量	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) content / 六價鉻含量	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs) / 多溴聯苯	0.1% (1000ppm)
Polybrominated Diphenyl Ehters (PBDEs) / 多溴聯苯醚	0.1% (1000ppm)

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.
本限值是依據歐盟指令 2011/65/EU 附錄二針對均質材質所訂定。

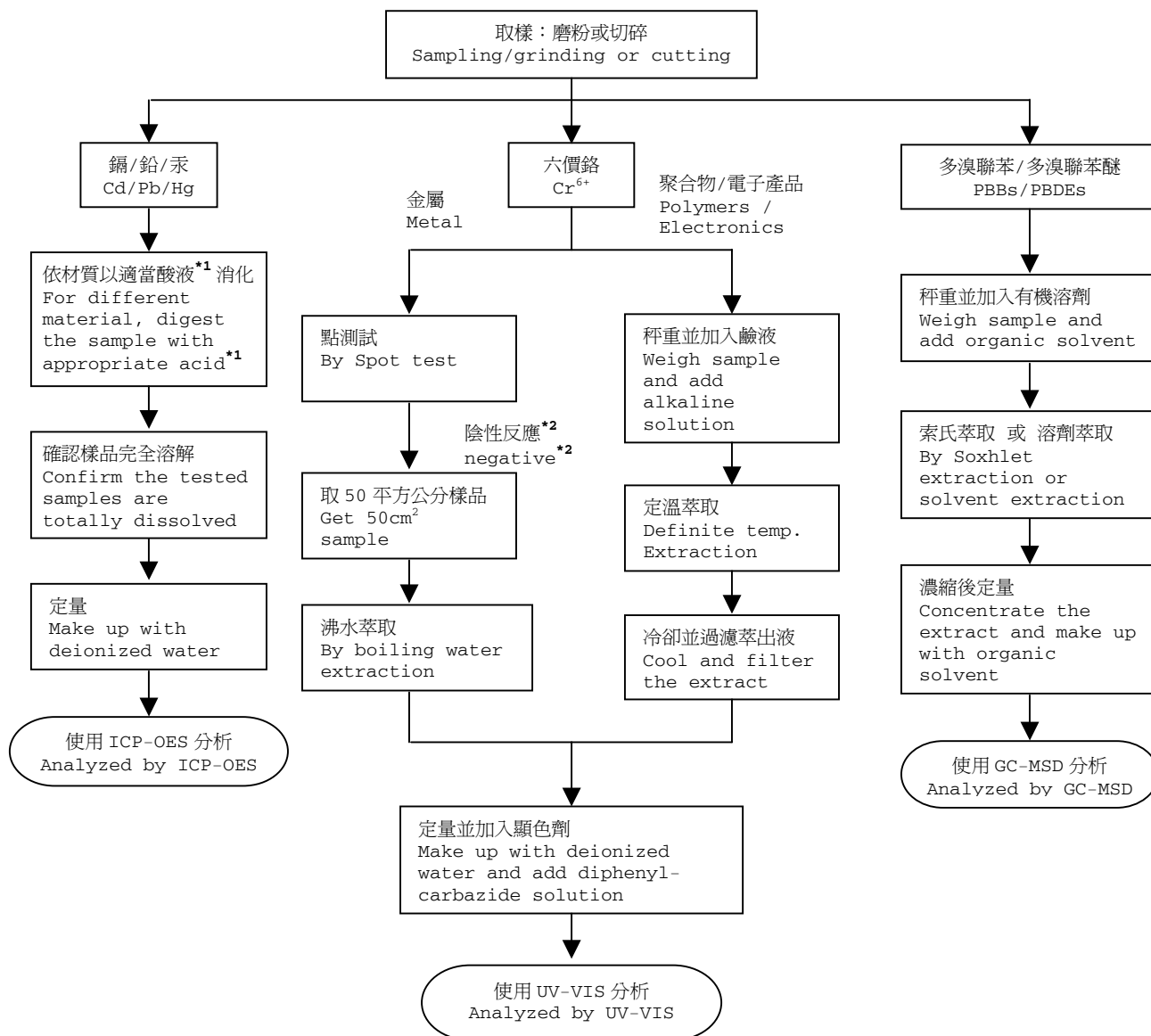


Test Conducted

(III) Measurement Flowchart 測試流程圖:

Test for Cd/Pb/Hg/Chromium (VI)/PBBS/PBDEs Contents RoHS六項測試流程圖

Reference Standard 參考方法: IEC 62321 edition 1.0:2008



Test Conducted

Remarks 備註:

*1: List of Appropriate Acid 各材質添加酸液如下表:

Material 樣品材質	Acid Added for Digestion 添加酸液種類
Polymers / 聚合物	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃ 硝酸、鹽酸、氫氟酸、雙氧水、硼酸
Metals / 金屬	HNO ₃ , HCl, HF 硝酸、鹽酸、氫氟酸
Electronics / 電子產品	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄ 硝酸、鹽酸、雙氧水、氟硼酸

*2: If the result of spot test is positive, Chromium VI would be determined as detected.
若點測試的結果為陽性反應，則直接判定為測試樣品含有六價鉻。

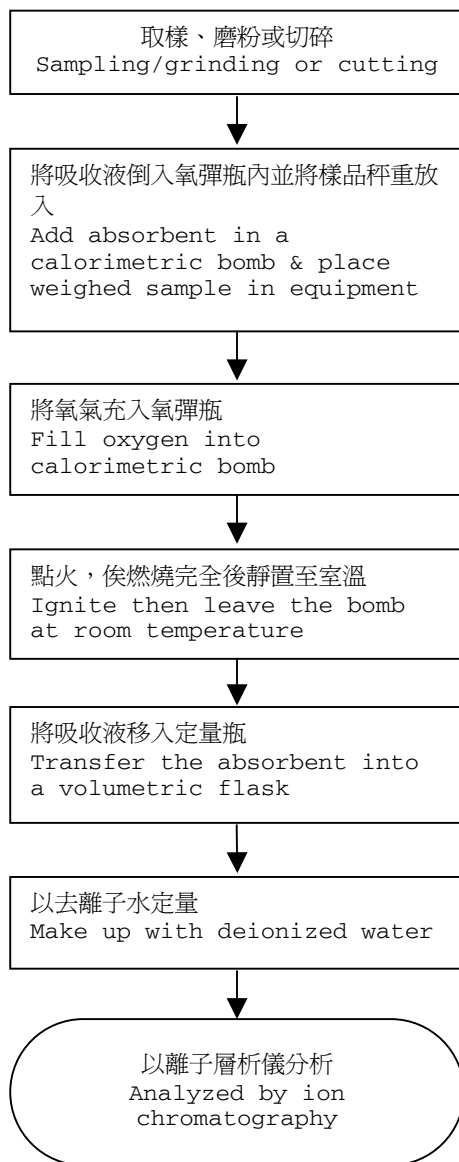


Test Conducted

(Ⅲ) Measurement Flowchart 測試流程圖:

Test For Halogen Content 鹵素測試流程圖

Reference Standard 參考方法: EN 14582

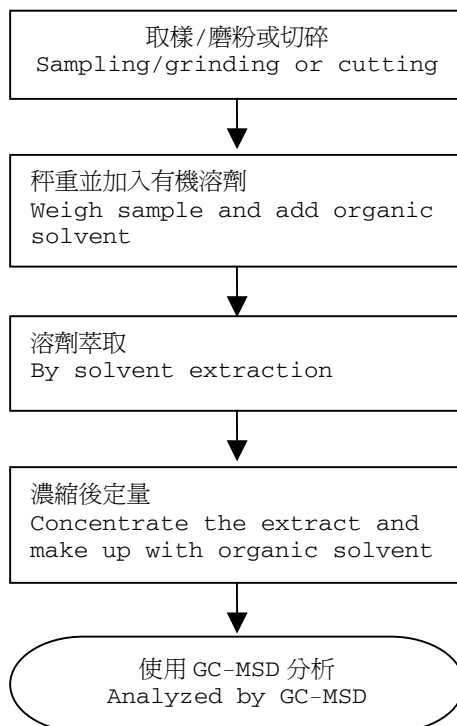


Test Conducted

(III) Measurement Flowchart 測試流程圖:

Test For Phthalates Contents 鄰苯二甲酸酯 測試流程圖

Reference Method 參考方法: EN 14372: 2004

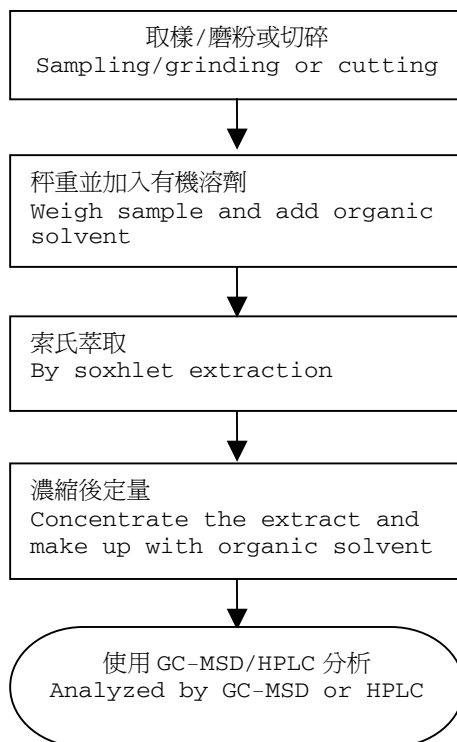


Test Conducted

(Ⅲ) Measurement Flowchart 測試流程圖:

Test For HBCCD Contents 六溴環十二烷測試流程圖

Reference Standard 參考方法:



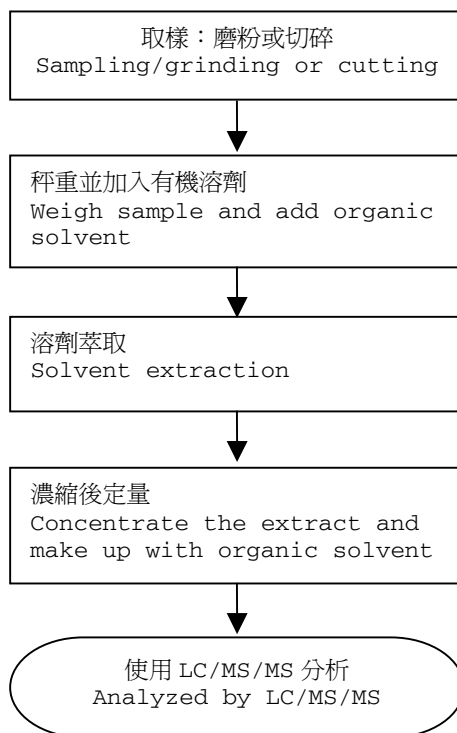
Test Conducted

(Ⅲ) Measurement Flowchart 測試流程圖:

Test For Perfluorooctane Sulfonates (PFOS) / Perfluorooctanoic Acid (PFOA)

Contents 全氟辛磺酸 / 全氟辛酸測試流程圖

Reference Method 參考方法: CEN/TS 15968_2010



End of Report

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Test Conducted

Photo

