

Certificate of non-use of The Controlled Substances

Company name Littelfuse, Inc.

Product Covered Thyristor TO-251 Package (V-PAK)
 Thyristor TO-252 Package (D-PAK)

Issue Date August 13, 2011

It is hereby certified by Littelfuse, Inc, that there is neither RoHS (EU Directive 2011/65/EU)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes. In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by

Koichiro Yoshimoto, Senior Product Engineer, Littelfuse, Inc.

(1) Parts, sub-materials and unit parts

This document covers Thyristor TO-251 Package (V-PAK) and TO-252 Package (D-PAK) supplied by Littelfuse, Inc. Actual values in this report are taken from Q8004D4 and the result is generally applicable to all Thyristor TO-251 Package (V-PAK) and TO-252 Package (D-PAK) supplied by Littelfuse, LP.

Please see page 2 & 3 for the complete list of part number covered by this report.

< Homogeneous Materials used >

Please see figure and table 1 on page 4 and table 2 on page 4 of this document.

(2) The analytical data on all measurable substances

Please see annex 1 through 6, attached to this document

Remarks :

1. Pb (lead) contained in die bonding solder (item 8 on page 4) and passivation glass (item 7) to be categorized as exempt in RoHS Annex III 7(a) and 7(c)-I.

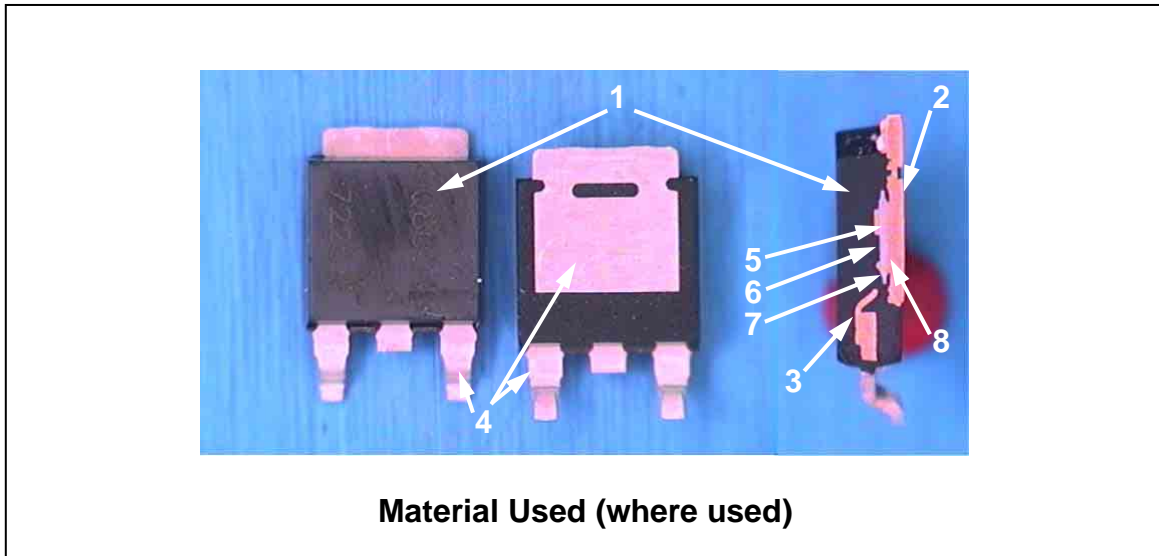
Please refer to Annex 7 of this report for the extract of the applicable exemptions of RoHS (EU Directive 2011/65/EU)

Littelfuse Part Number covered by this report (1/2)
TO-261 V Package

Standard (Catalog) Part Number				
L2004V3	LTV04-800T	S2004VS1	SK006V	SUFFIX FOR PACKING STYLE
L2004V5	LTV08-600BH	S2004VS2	SK008V	Any Part Number listed in this table is followed by RP or TP for packing style.
L2004V6	LTV08-600B	S2006VS2	SK010V	
L2004V8	LTV08-600CH	S2006VS3	SK012V	
L2006V5	LTV08-600C	S2006V		
L2006V6	LTV08-600SH	S2008VS2		SPECIAL DEVICE P/N
L2006V8	LTV08-600S	S2008VS3		
L2008V6	LTV08-600TH	S2008V		Any Special P/N that has base standard P/N listed in this table.
L2008V8	LTV08-600T	S2010VS2		
L4004V3	LTV08-800BH	S2010VS3		
L4004V5	LTV08-800B	S2010V		
L4004V6	LTV08-800CH	S2012V		
L4004V8	LTV08-800C	S4004VS1		
L4006V5	LTV08-800SH	S4004VS2		
L4006V6	LTV08-800S	S4006VS2		
L4006V8	LTV08-800TH	S4006VS3		
L4008V6	LTV08-800T	S4006V		
L4008V8		S4008VS2		
L6004V3		S4008VS3		
L6004V5	Q2004V3	S4008V		
L6004V6	Q2004V4	S4010VS2		
L6004V8	Q4004V3	S4010VS3		
L6006V5	Q4004V4	S4010V		
L6006V6	Q4006VH3	S4012V		
L6006V8	Q4006VH4	S6004VS1		
L6008V6	Q4008VH3	S6004VS2		
L6008V8	Q4008VH4	S6006VS2		
	Q6004V3	S6006VS3		
	Q6004V4	S6006V		
LTV04-600CH	Q6006VH3	S6008VS2		
LTV04-600C	Q6006VH4	S6008VS3		
LTV04-600SH	Q6008VH3	S6008V		
LTV04-600S	Q6008VH4	S6010VS2		
LTV04-600TH	Q8004V4	S6010VS3		
LTV04-600T	Q8006VH4	S6010V		
LTV04-800CH	Q8008VH4	S6012V		
LTV04-800C	QK004V4	S8006V		
LTV04-800SH	QK006VH4	S8008V		
LTV04-800S	QK008VH4	S8010V		
LTV04-800TH		S8012V		

Littelfuse Part Number covered by this report (2/2)
TO-262 D Package

Standard (Catalog) Part Number				
L2004D3	LTD04-800TH	S2004DS1	SK006D	SUFFIX FOR PACKING STYLE
L2004D5	LTD08-600B	S2004DS2	SK008D	Any Part Number listed in this table is followed by RP or TP for packing style.
L2004D6	LTD08-600BH	S2006D	SK010D	
L2004D8	LTD08-600C	S2006DS2	SK012D	
L2006D5	LTD08-600CH	S2006DS3		
L2006D6	LTD08-600S	S2008D		SPECIAL DEVICE P/N
L2006D8	LTD08-600SH	S2008DS2		
L2008D6	LTD08-600T	S2008DS3		Any Special P/N that has base standard P/N listed in this table.
L2008D8	LTD08-600TH	S2010D		
L4004D3	LTD08-800B	S2010DS2		
L4004D5	LTD08-800BH	S2010DS3		
L4004D6	LTD08-800C	S2012D		
L4004D8	LTD08-800CH	S4004DS1		
L4006D5	LTD08-800S	S4004DS2		
L4006D6	LTD08-800SH	S4006D		
L4006D8	LTD08-800T	S4006DS2		
L4008D6	LTD08-800TH	S4006DS3		
L4008D8		S4008D		
L6004D3		S4008DS2		
L6004D5	Q2004D3	S4008DS3		
L6004D6	Q2004D4	S4010D		
L6004D8	Q4004D3	S4010DS2		
L6006D5	Q4004D4	S4010DS3		
L6006D6	Q4006DH3	S4012D		
L6006D8	Q4006DH4	S6004DS1		
L6008D6	Q4008DH3	S6004DS2		
L6008D8	Q4008DH4	S6006D		
	Q6004D3	S6006DS2		
	Q6004D4	S6006DS3		
LTD04-600C	Q6006DH3	S6008D		
LTD04-600CH	Q6006DH4	S6008DS2		
LTD04-600S	Q6008DH3	S6008DS3		
LTD04-600SH	Q6008DH4	S6010D		
LTD04-600T	Q8004D4	S6010DS2		
LTD04-600TH	Q8006DH4	S6010DS3		
LTD04-800C	Q8008DH4	S6012D		
LTD04-800CH	QK004D4	S8006D		
LTD04-800S	QK006DH4	S8008D		
LTD04-800SH	QK008DH4	S8010D		
LTD04-800T		S8012D		


Table 1: Homogeneous Material Used

#	Description	Name of Material	Type	Analysis data
1	Molding compound	epoxy resin	plastic	annex 1
2	Lead frame	copper alloy	metal	annex 2
3	Preform (clip)			
4	Matte-Tin plating	Tin	metal	annex 3
5	Silicon die	silicon	metal	annex 4, tested as Nickel-plated wafer.
6	Nickel electrode	nickel	metal	
7	Passivation glass	glass	glass	annex 5. Pb in this glass is exempted by RoHS Annex III 7(c)-I.
8	Die bonding solder	solder	metal	annex 6. Pb in this solder is exempted by RoHS Annex III 7(a).

Table 2: RoHS-regulated substance in raw materials

Components	Analysis Result					
	Cd Cadmium	Cr Chromium	Hg Mercury	Pb Lead	PBB	PBDE
As Component Total (Values of Q8004D4 * ¹ , as representative of Thyristor TO-251 & TO-252 Package)	< 2ppm	< 2ppm	< 2ppm	<10 ppm* ² (1.5%* ³)	< 5 ppm	< 5 ppm
Epoxy Resin compound (mixture of phenolix resin, epoxy resin, filler and Sb ₂ O ₃ as fire retardant) See Annex 1 for the detail.	< 2ppm	< 2ppm	< 2ppm	< 2ppm	< 5ppm	<5 ppm
Lead frame / Preform (Copper Alloy, KFC) See Annex 2 for the detail.	< 2ppm	< 2ppm	< 2ppm	< 2ppm	< 5ppm	<5 ppm
Outside lead finish (Matte-Tin plated, Sn 100%) See Annex 3 for the detail.	< 2ppm	< 2ppm	< 2ppm	<2ppm	---	---
Silicon Die (Silicon + Ni electrode) See Annex 4 for the detail.	< 2ppm	< 2ppm	< 2ppm	48ppm* ⁶	---	---
Passivation Glass See Annex 5 for the detail.	< 2ppm	< 2ppm	< 2ppm	40% * ⁴	< 5ppm	< 5ppm
Die Bonding Solder (Pb=92.5%) See Annex 6 for the detail.	< 2ppm	< 2ppm	< 2ppm	92.5% * ⁵	< 5ppm	<5 ppm

- *1 Other products may contain equal or less amount of Pb as Q8004D4 value shown here, but not more than the value shown here.
- *2 Less than 10ppm Pb content overall, excluding Pb from the die bonding solder and the passivation glass on the silicon die.
- *3 1.5wt% or 5mg of Pb (lead) content overall, including the RoHS-exempted use of Pb
- *4 Pb (lead) contained in passivation glass is exempted from restriction by RoHS Annex III 7(c)-I.
- *5 Pb (lead) contained in die bonding solder is exempted from restriction by RoHS Annex III 7(a).
- *6 Pb (lead) contained in silicon wafer is process contamination or naturally-occurring impurity in raw materials. Littelfuse does not add Pb intentionally.

Please refer to Annex 7 of this report for the applicable exemptions of RoHS (EU Directive 2011/65/EU)

Annex 1: Analysis Result of Molding Compound (Page 1 of 23)**測試報告**
Test Report

號碼(No.) : KA/2010/A1463 日期(Date) : 2010/11/03 頁數(Page) : 1 of 23

長興電子材料(昆山)有限公司
ETERNAL ELECTRONIC MATERIALS (KUNSHAN) CO.,LTD.
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267, QINGYANG ROAD, KUNSHAN JIANGSU PROVINCE, CHINA

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):

樣品名稱(Sample Description)	:	EPOXY MOLDING COMPOUND(環氧樹脂)
樣品型號(Style/Item No.)	:	EK1800 (Lot No: K1008712)
收件日期(Sample Receiving Date)	:	2010/10/26
測試期間(Testing Period)	:	2010/10/26 TO 2010/11/03

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


Ray Chang / Asst. Manager
Signed for and on behalf of
SGS Taiwan Limited


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Annex 1: Analysis Result of Molding Compound (Page 2 of 23)



測試報告 Test Report

號碼(No.) : KA/2010/A1463 日期(Date) : 2010/11/03 頁數(Page) : 2 of 23

 長興電子材料(昆山)有限公司
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測試結果(Test Results)

測試部位(PART NAME) NO.1 : 黑色 EPOXY MOLDING COMPOUND(環氧樹脂) (BLACK EPOXY MOLDING COMPOUND(環氧樹脂))

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
鎘 / Cadmium (Cd)	mg/kg	參考IEC 62321: 2008方法, 用感應耦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, 用感應耦合電漿原子發射光譜儀檢測。 / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	6.84
汞 / Mercury (Hg)	mg/kg	參考IEC 62321: 2008方法, 用感應耦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 alkaline extraction	mg/kg	參考IEC 62321: 2008方法, 用UV-VIS檢測。 / With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.
多溴聯苯總和 / Sum of PBBs			-	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	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.	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.

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Annex 1: Analysis Result of Molding Compound (Page 3 of 23)



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長興電子材料(昆山)有限公司
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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	
多溴聯苯醚總和 / Sum of PBDEs			-	n.d.	
一溴聯苯醚 / Monobromodiphenyl ether			5	n.d.	
二溴聯苯醚 / Dibromodiphenyl ether			5	n.d.	
三溴聯苯醚 / Tribromodiphenyl ether			5	n.d.	
四溴聯苯醚 / Tetrabromodiphenyl ether			5	n.d.	
五溴聯苯醚 / Pentabromodiphenyl ether	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.	5	n.d.	
六溴聯苯醚 / Hexabromodiphenyl ether			5	n.d.	
七溴聯苯醚 / Heptabromodiphenyl ether			5	n.d.	
八溴聯苯醚 / Octabromodiphenyl ether			5	n.d.	
九溴聯苯醚 / Nonabromodiphenyl ether			5	n.d.	
十溴聯苯醚 / Decabromodiphenyl ether			5	n.d.	
銻 / Antimony (Sb)	mg/kg		參考US EPA 3052方法, 用感應耦合電漿原子 發射光譜儀檢測銻含量。 / With reference to US EPA Method 3052 for Antimony Content. Analysis was performed by ICP- AES.	2	7750
磷 / Phosphorus (P)	mg/kg		參考US EPA 3052方法, 用感應耦合電漿原子 發射光譜儀檢測磷含量。 / With reference to US EPA Method 3052 for Phosphorus Content. Analysis was performed by ICP- AES.	2	21.1
多氯萘 / Polychlorinated Naphthalene (PCNs)	mg/kg		參考US EPA 3540C方法, 以氣相層析質譜儀 (GC/MS)檢測。 / With reference to US EPA 3540C method. Analysis was performed by GC/MS.	5	n.d.
多氯三聯苯 / Polychlorinated Terphenyls (PCTs)	mg/kg		參考US EPA 3540C方法, 以氣相層析質譜儀 (GC/MS)檢測。 / With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.5	n.d.

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Annex 1: Analysis Result of Molding Compound (Page 4 of 23)



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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
多氯聯苯 / Polychlorinated Biphenyls (PCBs) (CAS No.: 001336-36-3)	mg/kg	參考US EPA 3540C方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.5	n.d.
四溴雙酚-A / Tetrabromobisphenol A (TEBP-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 method. Analysis was performed by GC/MS.	10	n.d.
氯化石蠟 / Chlorinated Paraffin (C10-C13) (CAS No.: 085535-84-8)	%	參考US EPA 3540C: 1996方法, 以氣相層析儀/電子捕獲偵測器檢測。 / With reference to US EPA 3540C: 1996 method. Analysis was performed by GC/ECD.	0.01	n.d.
六溴環十二烷 / Hexabromocyclododecane (HBCDD) (CAS No.: 025637-99-4)	mg/kg	參考US EPA 3540C: 1996方法, 以氣相層析質譜儀檢測。 / With reference to US EPA 3540C: 1996 method. Analysis was performed by GC/MS.	5	n.d.
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.
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.

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Annex 1: Analysis Result of Molding Compound (Page 5 of 23)



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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
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	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	156
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	8730
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.
可塑劑定量分析 / Phthalates				
鄰苯二甲酸甲苄基丁酯 / BBP (Benzyl butyl phthalate) (CAS No.: 000085-68-7)	%	本測試參考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.
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 000084-74-2)	%	本測試參考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.

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長興電子材料(昆山)有限公司
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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
鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No.: 000117-81-7)	%	本測試參考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.
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 026761-40-0)	%	本測試參考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	n.d.
鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (CAS No.: 028553-12-0)	%	本測試參考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	n.d.
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No.: 000117-84-0)	%	本測試參考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.
鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No.: 000117-81-7)	%	本測試參考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.
鄰苯二甲酸二己酯 / DNHP (Di-n-hexyl phthalate) (CAS No.: 000084-75-3)	%	本測試參考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.

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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
鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl phthalate) (CAS No.: 000084-69-5)	%	本測試參考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.
鄰苯二甲酸二甲酯 / DMP (Di-methyl phthalate) (CAS No.: 000131-11-3)	%	本測試參考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.
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.
Acenaphthylene (CAS No.: 000208-96-8)	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.
Anthracene (CAS No.: 000120-12-7)	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.

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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
Benzo[a]anthracene (CAS No.: 000056-55-3)	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.
Benzo[a]pyrene (CAS No.: 000050-32-8)	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.
Benzo[b]fluoranthene (CAS No.: 000205-99-2)	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.
Benzo[g,h,i]perylene (CAS No.: 000191-24-2)	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.
Benzo[k]fluoranthene (CAS No.: 000207-08-9)	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.
Chrysene (CAS No.: 000218-01-9)	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.
Dibenzo[a,h]anthracene (CAS No.: 000053-70-3)	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.

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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
Fluoranthene (CAS No.: 000206-44-0)	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.
Fluorene (CAS No.: 000086-73-7)	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.
Indeno[1,2,3-c,d] pyrene (CAS No.: 000193-39-5)	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.
Naphthalene (CAS No.: 000091-20-3)	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.
Phenanthrene (CAS No.: 000085-01-8)	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.
Pyrene (CAS No.: 000129-00-0)	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.
多苯環芳香族化合物16項總和 / Sum of 16 PAHs	mg/kg	-	-	n.d.

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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. "---" = Not Conducted (未測項目)
6. **= Qualitative analysis (No Unit) 定性分析(無單位)

參考資料(Reference information) :

依據ZEK 01.2-08之要求: 產品中最大限值

(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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**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 $1\mu\text{g}/\text{m}^2$ 。(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 $1\mu\text{g}/\text{m}^2$ of the coated material.)

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Annex 1: Analysis Result of Molding Compound (Page 12 of 23)



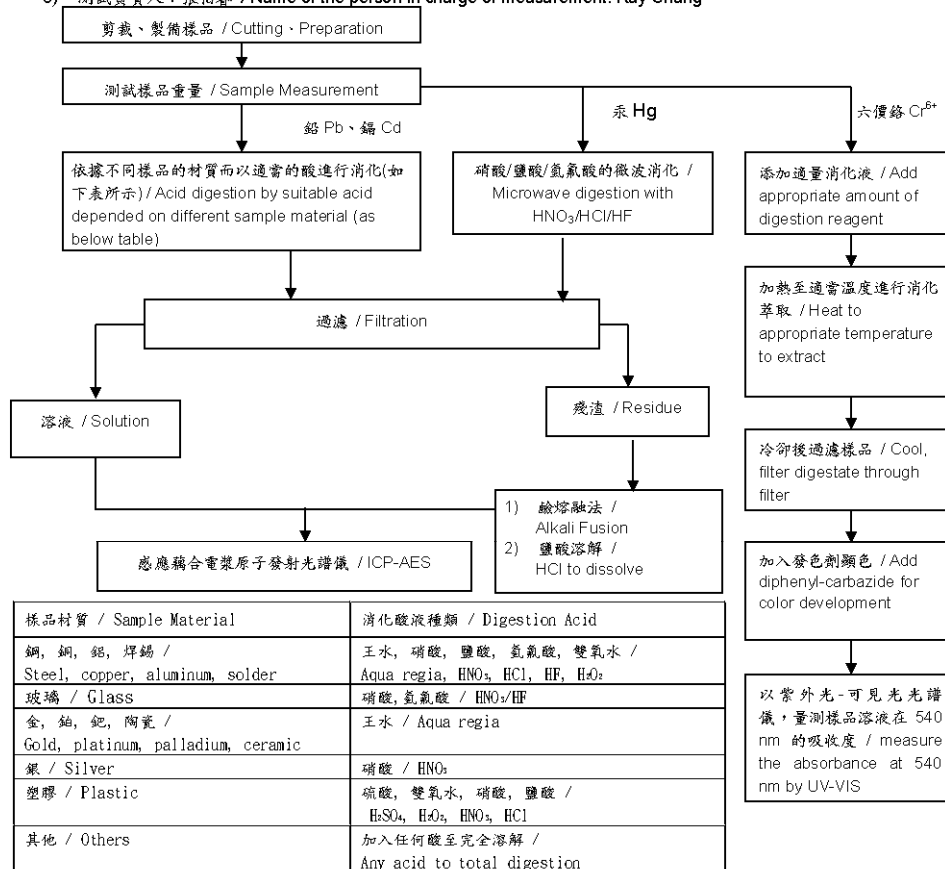
測試報告 Test Report

號碼(No.) : KA/2010/A1463 日期(Date) : 2010/11/03 頁數(Page) : 12 of 23

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267, QINGYANG ROAD, KUNSHAN JIANGSU PROVINCE, CHINA



- 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)
- 測試人員：張俊雄 / Name of the person who made measurement: Alex Chang
- 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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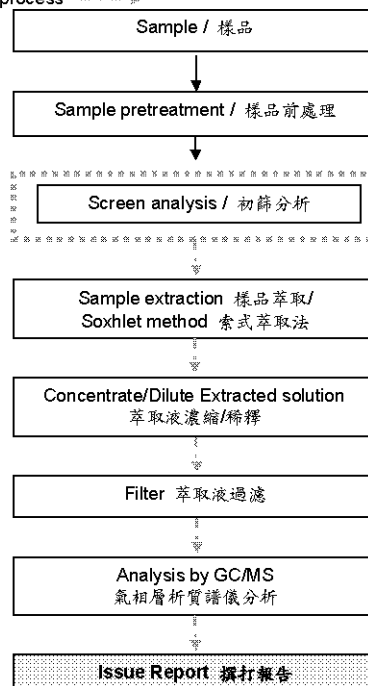
多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

- 1) 測試人員: 曹嘉琪 / Name of the person who made measurement: Anson Tsao
 2) 測試負責人: 張伯睿 / Name of the person in charge of measurement: Ray 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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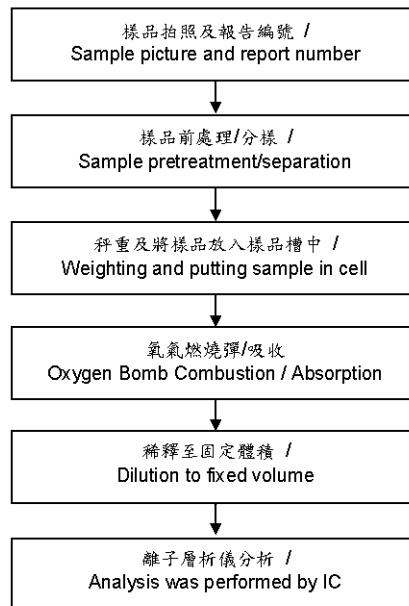
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鹵素分析流程圖 / Analytical flow chart of halogen content

- 1) 測試人員：洪秀真 / Name of the person who made measurement: Jean Hung
- 2) 測試負責人：張伯馨 / Name of the person in charge of measurement: Ray Chang



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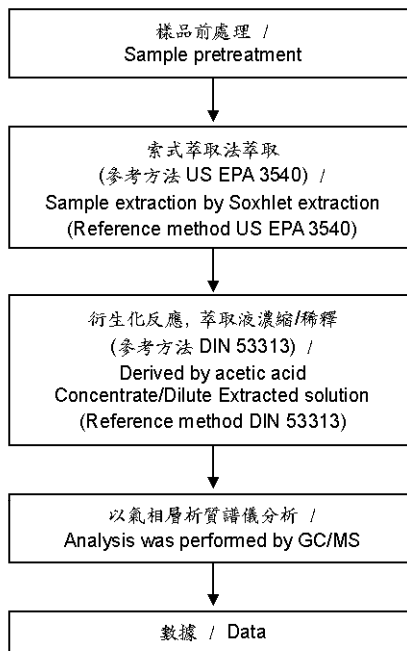
號碼(No.) : KA/2010/A1463 日期(Date) : 2010/11/03 頁數(Page) : 15 of 23

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四溴雙酚-A分析流程圖 / TBBP-A analytical flow chart

- 1) 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao
- 2) 測試負責人：張伯容 / Name of the person in charge of measurement: Ray Chang



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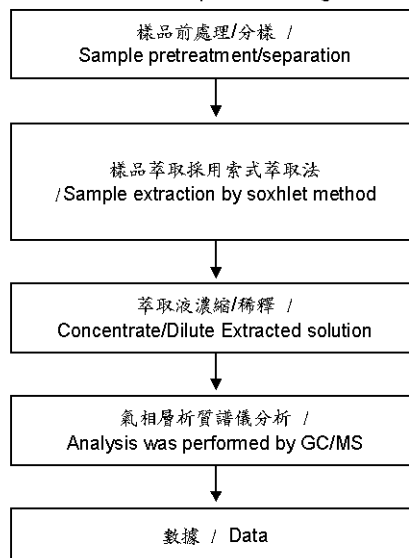
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可塑劑分析流程圖 / Analytical flow chart of phthalate content

1) 測試人員: 曹嘉琪 / Name of the person who made measurement: Anson Tsao

2) 測試負責人: 張伯睿 / Name of the person in charge of measurement: Ray Chang



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Annex 1: Analysis Result of Molding Compound (Page 17 of 23)**測試報告
Test Report**

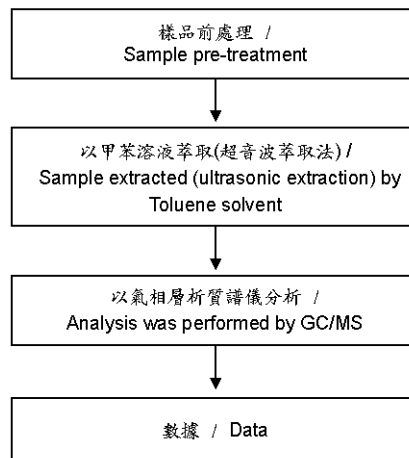
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**多苯環芳香族化合物分析流程圖 /
PAHs (Poly Aromatic Hydrocarbons) analytical flow chart**

- 1) 測試人員: 曹嘉琪 / Name of the person who made measurement: Anson Tsao
2) 測試負責人: 張伯睿 / Name of the person in charge of measurement: Ray Chang



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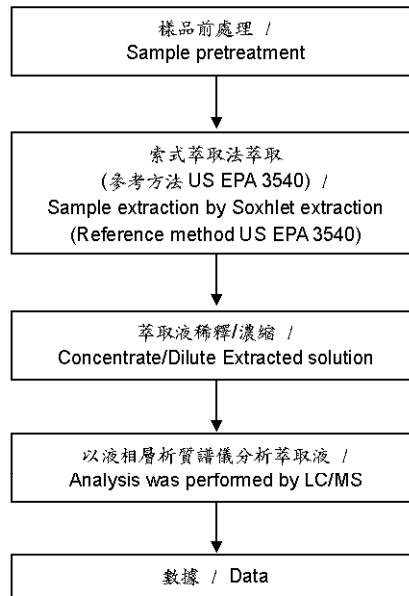


全氟辛酸(鈹)/全氟辛烷磺酸分析流程圖 /

Analytical flow chart of PFOA/PFOS content

1) 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao

2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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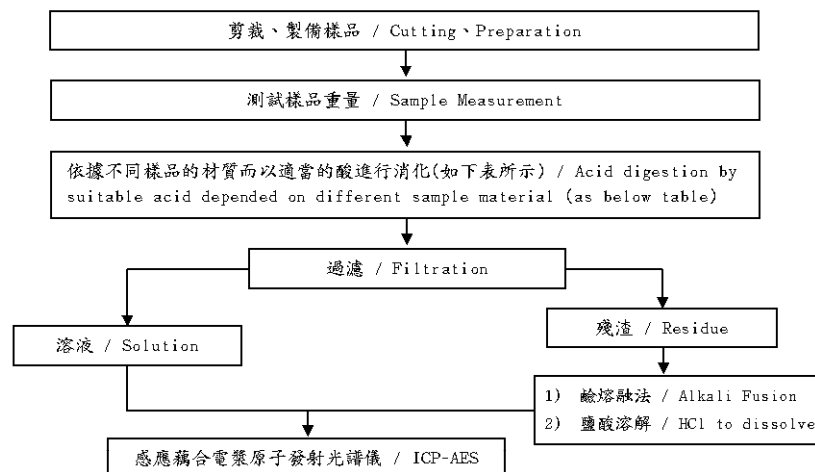
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) 測試人員：張俊雄 / Name of the person who made measurement: Alex Chang
- 3) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray 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)



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, 鈱, 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

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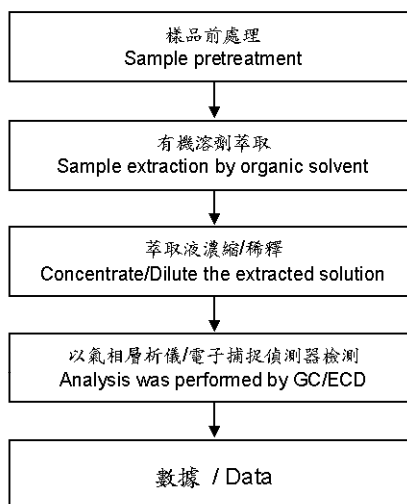


含氯阻燃劑分析流程 /

Chlorinated Flame retardant analytical flow chart

- 1) 測試人員: 曹嘉琪 / Name of the person who made measurement: Anson Tsao
- 2) 測試負責人: 張伯睿 / Name of the person in charge of measurement: Ray Chang

- 參考方法(Reference method): USEPA 3540
- 測試項目(Test Items): PCBs, CP, MCCP / 多氯聯苯, 氯化石蠟, 中鏈氯化石蠟



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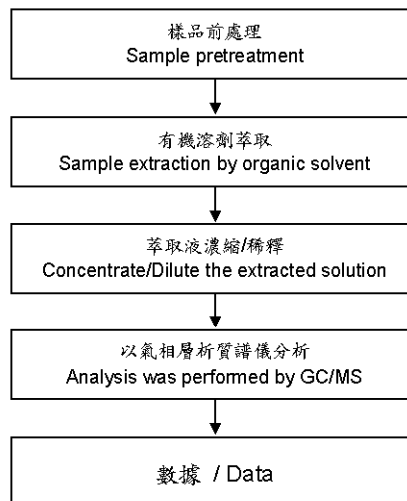
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含氯阻燃劑分析流程 /

Chlorinated Flame retardant analytical flow chart

- 1) 測試人員: 曹嘉琪 / Name of the person who made measurement: Anson Tsao
 - 2) 測試負責人: 張伯容 / Name of the person in charge of measurement: Ray Chang
- 參考方法(Reference method): US EPA 8270D, US EPA 3540
 - 測試項目(Test Items): PCNs, PCTs, Mirex / 多氯奈, 多氯三聯苯, 滅蟻靈,



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Annex 1: Analysis Result of Molding Compound (Page 22 of 23)



測試報告 Test Report

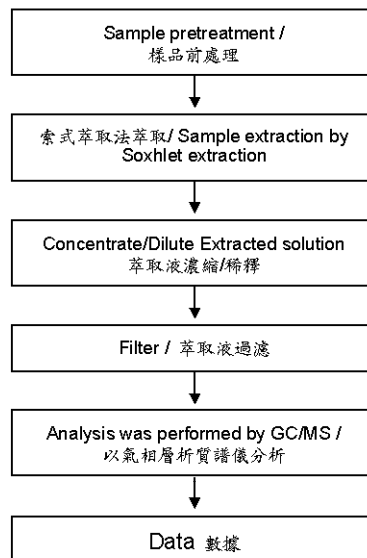
號碼(No.) : KA/2010/A1463 日期(Date) : 2010/11/03 頁數(Page) : 22 of 23

長興電子材料(昆山)有限公司
ETERNAL ELECTRONIC MATERIALS (KUNSHAN) CO.,LTD.
中國江蘇省昆山市青陽中路267號
267, QINGYANG ROAD, KUNSHAN JIANGSU PROVINCE, CHINA



六溴環十二烷分析流程圖 / HBCDD Analytical FLOW CHART

- 1) 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao
- 2) 測試負責人：張伯審 / Name of the person in charge of measurement: Ray Chang



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Annex 1: Analysis Result of Molding Compound (Page 23 of 23)**SGS****測試報告
Test Report**

號碼(No.) : KA/2010/A1463 日期(Date) : 2010/11/03 頁數(Page) : 23 of 23

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**** 報告結尾(End of Report) ****

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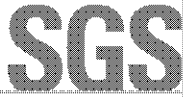
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Annex 2: Analysis Result of Lead frame (Page 1 of 7)

SGS	Validity unknown For Question Please Contact with SGS www.tw.sgs.com
Test Report No. : CE/2010/B5426 Date : 2010/12/03 Page : 1 of 7	
EXCEL CELL ELECTRONIC CO., LTD. NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850	
	
The following sample(s) was/were submitted and identified by/on behalf of the client as:	
Sample Description	: KFC
Sample Receiving Date	: 2010/11/26
Testing Period	: 2010/11/26 TO 2010/12/03
=====	
Test Result(s)	: Please refer to next page(s).
 Chenyu Kung / Operation Manager Signed for and on behalf of SGS TAIWAN LTD. Chemical Laboratory – Taipei	
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Annex 2: Analysis Result of Lead frame (Page 2 of 7)



Test Report

No. : CE/2010/B5426 Date : 2010/12/03 Page : 2 of 7

 EXCEL CELL ELECTRONIC CO., LTD.
 NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850


Test Result(s)

PART NAME No.1 : COPPER COLORED METAL

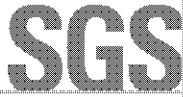
Test Item (s):	Unit	Method	MDL	Result
				No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI) by Spot test / boiling water extraction	**	With reference to IEC 62321: 2008 and performed by Spot test / boiling water extraction Method. (See Note 6)	0.02mg/kg with 50 cm ² surface area	Negative
Sum of PBBs	mg/kg	With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
Monobromobiphenyl			5	n.d.
Dibromobiphenyl			5	n.d.
Tribromobiphenyl			5	n.d.
Tetrabromobiphenyl			5	n.d.
Pentabromobiphenyl			5	n.d.
Hexabromobiphenyl			5	n.d.
Heptabromobiphenyl			5	n.d.
Octabromobiphenyl			5	n.d.
Nonabromobiphenyl			5	n.d.
Decabromobiphenyl			5	n.d.
Sum of PBDEs			-	n.d.
Monobromodiphenyl ether			5	n.d.
Dibromodiphenyl ether			5	n.d.
Tribromodiphenyl ether			5	n.d.
Tetrabromodiphenyl ether			5	n.d.
Pentabromodiphenyl ether			5	n.d.
Hexabromodiphenyl ether			5	n.d.
Heptabromodiphenyl ether			5	n.d.
Octabromodiphenyl ether			5	n.d.
Nonabromodiphenyl ether	5	n.d.		
Decabromodiphenyl ether	5	n.d.		

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Annex 2: Analysis Result of Lead frame (Page 3 of 7)



Test Report

No. : CE/2010/B5426 Date : 2010/12/03 Page : 3 of 7

EXCEL CELL ELECTRONIC CO., LTD.
NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850



Test Item (s):	Unit	Method	MDL	Result
				No.1
Halogen				
Halogen-Fluorine (F) (CAS No.: 014762-94-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
Halogen-Chlorine (Cl) (CAS No.: 022537-15-1)			50	n.d.
Halogen-Bromine (Br) (CAS No.: 010097-32-2)			50	n.d.
Halogen-Iodine (I) (CAS No.: 014362-44-8)			50	n.d.

Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated
5. ** = Qualitative analysis (No Unit)
6. Spot-test:

Negative = Absence of Cr(VI) coating / surface layer; Positive = Presence of Cr(VI) coating / surface layer;
(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)

Boiling-water-extraction:

Negative = Absence of Cr(VI) coating / surface layer; Positive = Presence of Cr(VI) coating / surface layer;
The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

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Annex 2: Analysis Result of Lead frame (Page 4 of 7)

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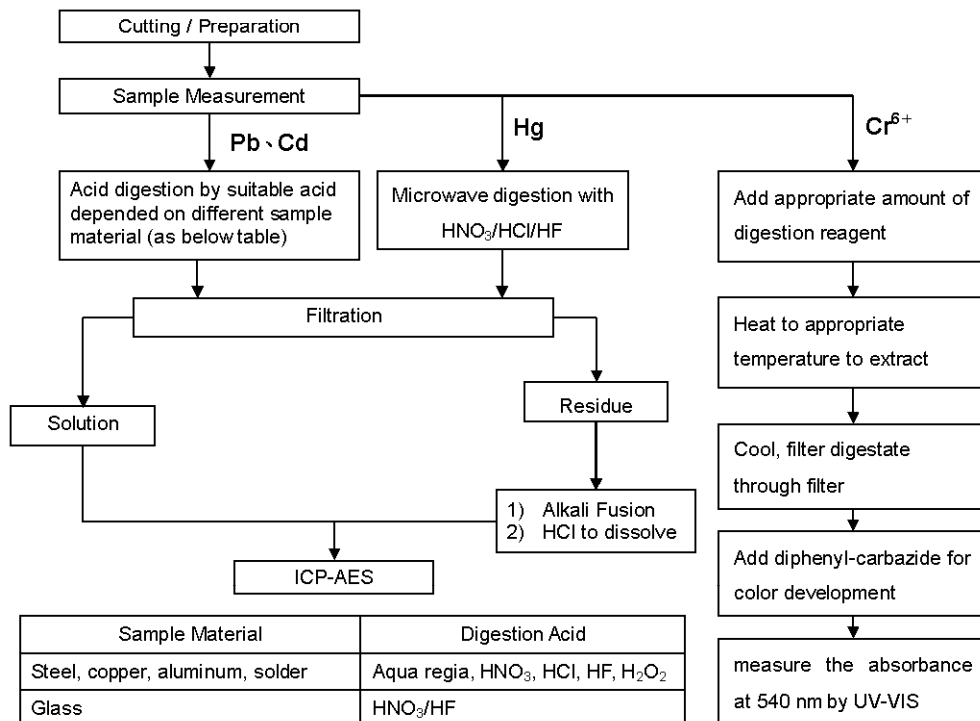
Test Report

No. : CE/2010/B5426 Date : 2010/12/03 Page : 4 of 7

EXCEL CELL ELECTRONIC CO., LTD.
NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ test method excluded)
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Any acid to total digestion

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Annex 2: Analysis Result of Lead frame (Page 5 of 7)

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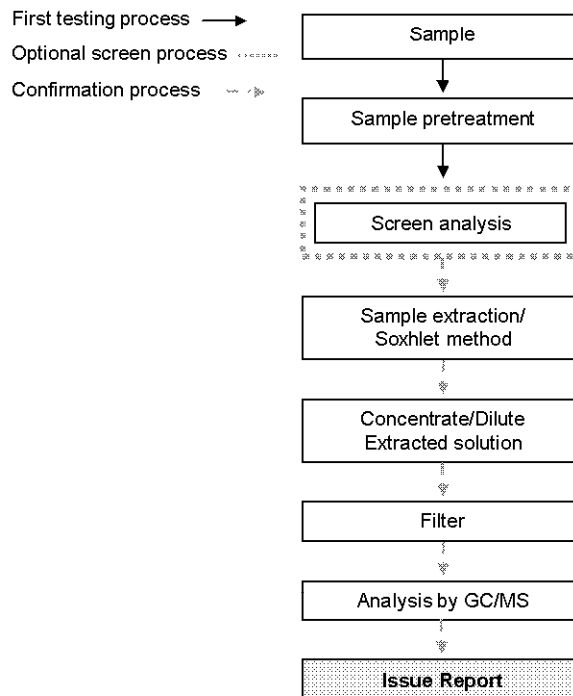
Test Report

No. : CE/2010/B5426 Date : 2010/12/03 Page : 5 of 7

 EXCEL CELL ELECTRONIC CO., LTD.
 NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850


PBB/PBDE analytical FLOW CHART

- 1) Name of the person who made measurement: Roman Wong
- 2) Name of the person in charge of measurement: Troy Chang



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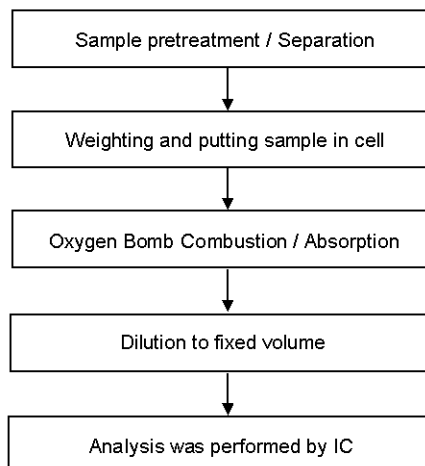
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Annex 2: Analysis Result of Lead frame (Page 6 of 7)**SGS****Test Report**

No. : CE/2010/B5426 Date : 2010/12/03 Page : 6 of 7

EXCEL CELL ELECTRONIC CO., LTD.
NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850**Analytical flow chart of halogen content**

- 1) Name of the person who made measurement: Rita Chen
- 2) Name of the person in charge of measurement: Troy Chang



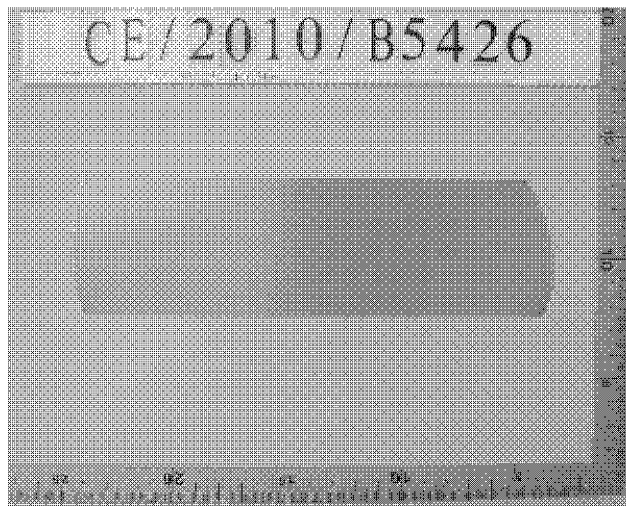
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Annex 2: Analysis Result of Lead frame (Page 7 of 7)**SGS****Test Report**

No. : CE/2010/B5426 Date : 2010/12/03 Page : 7 of 7

EXCEL CELL ELECTRONIC CO., LTD.
NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850**** End of Report ****

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Annex 3: Analysis Result of Tin plating (page 1 of 3)



Test Report

Report No. RLSHC000465570001R1

Page 1 of 3

Applicant BANDL (KUNSHAN) INTERNATIONAL CORPORATION
Address NO1698. ZIZHU ROAD, KUNSHAN CITY JIANGSU PROVINCE

Report on the submitted sample(s) said to be

Sample Name Matte of rack plating
Sample Description Silvery white metal
Part No. Sn-LAYER
Sample Received Date Nov. 19, 2010
Testing Period Nov. 19, 2010 to Nov. 22, 2010

Test Requested To determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)) content in the submitted sample according to the request of client.

Test Method

Test Item(s)	Test Method	Measured Equipment(s)	MDL
Lead(Pb)	IEC 62321:2008 Ed.1 Sec.9	ICP-OES	2mg/kg
Cadmium(Cd)	IEC 62321:2008 Ed.1 Sec.9	ICP-OES	2mg/kg
Mercury(Hg)	IEC 62321:2008 Ed.1 Sec.7	ICP-OES	2mg/kg
Hexavalent Chromium (Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis	/

Test Result(s) Please refer to the following page(s).

Tested by



Approved by

Technical manager

Inspected by

Zhong Yijun

Date

Nov. 24, 2010

No. 124885967



Annex 3: Analysis Result of Tin plating (page 2 of 3)



Test Report

Report No. RLSHC000465570001R1

Page 2 of 3

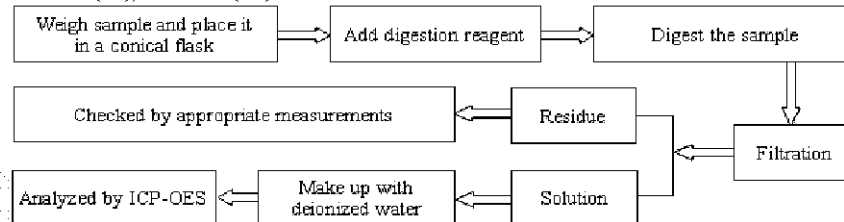
Test Result(s)

Tested Item(s)	Content
Lead(Pb)	N.D.
Cadmium (Cd)	N.D.
Mercury(Hg)	N.D.
Hexavalent Chromium (Cr(VI))	Negative

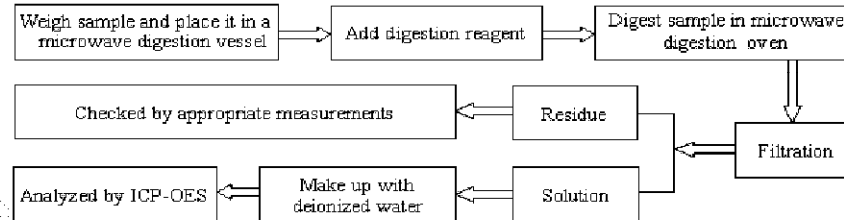
Note: The sample had been dissolved totally tested for Lead, Cadmium, Mercury.
 -MDL = Method Detection Limit
 -N.D. = Not Detected (<MDL)
 -mg/kg = ppm = parts per million
 -Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg with 50cm² sample surface area used.
 This report replaces report RLSHC000465570001. Report RLSHC000465570001 is terminated.

Test Process

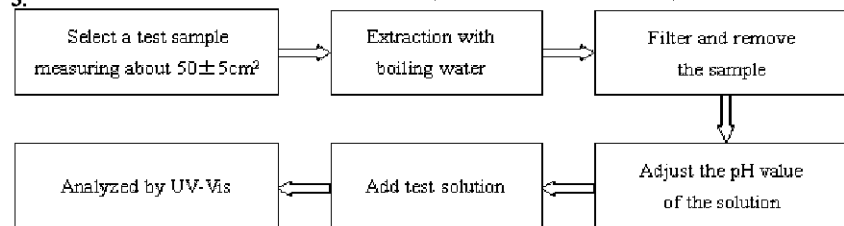
1. Lead(Pb), Cadmium(Cd)



2. Mercury(Hg)



3. Hexavalent Chromium (Cr(VI))

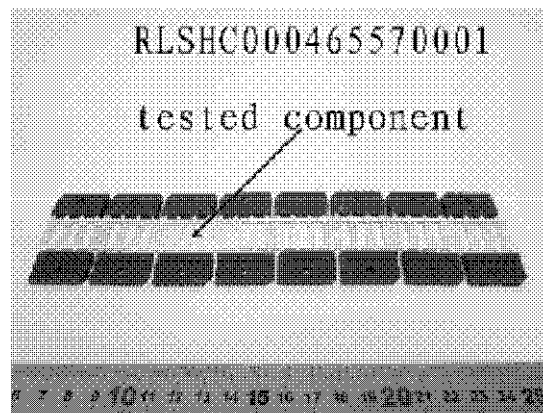


Annex 3: Analysis Result of Tin plating (page 3 of 3)**CTI****Test Report**

Report No. RLSHC000465570001R1

Page 3 of 3

Photo(s) of the sample(s)



End of report

This report is considered invalidated without the Special Seal for Inspection of the CTI. This report shall not be altered, increased or deleted. The results shown in this test report refer only to the sample(s) tested. Without written approval of CTI, this test report shall not be copied except in full and published as advertisement.

No.1996, Xinjinqiao Road, Pudong, Shanghai



Annex 4: Analysis Result of Ni-plated Wafer (Page 1 of 5)**Intertek**

TEST REPORT

Number : WUXH00005703

Applicant : CONCORD SEMICONDUCTOR(WUXI) CO., LTD.
EAST 1#, ZHENFA 6 ROAD, SHUO FANG
INDUSTRIAL PARK WUXI NATIONAL HIGH-TECH
DEVELOPMENT ZONE, WUXI, JIANGSU, CHINA
Attn : ZHANG XIAOPENG

Date : Aug 04, 2011

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **Silvery Grey Metal.**

Item Name : Silicon Wafer With Nickel Plating.

Vendor : Concord.

Component Or Part No. : Silicon + Nickel.

Test Item : Cd, Pb, Hg, CrVI, PBBs, PBDEs.

Remark : As Requested By The Applicant, Tested As A Whole And Sampled Randomly.

Tests Conducted:

As Requested By The Applicant, For Details Refer To Attached Pages

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.



Jessica Lu
General Manager

Page 1 Of 5

Intertek Testing Services Wuxi Ltd.No.8 Fubei Road, Xishan Economic Development Zone,
Wuxi 214101, Jiangsu, China

Tel: +86 510 8821 4667 Fax: +86 510 8820 0428 E-mail: consumergoods.wuxi@intertek.com

Annex 4: Analysis Result of Ni-plated Wafer (Page 2 of 5)



TEST REPORT

Number : WUXH00005703

Tests Conducted (As Requested By The Applicant)

- 1 RoHS Directives Test
 - (A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND
Lead (Pb) Content (mg/kg)	48
Mercury (Hg) Content (mg/kg)	ND
Chromium (VI) (Cr ^{VI}) Content (mg/kg)(For Non-Metal)	ND
Polybrominated Biphenyls (PBBs)(mg/kg)	
Monobrominated Biphenyls (MonoBB)	ND
Dibrominated Biphenyls (DiBB)	ND
Tribrominated Biphenyls (TriBB)	ND
Tetrabrominated Biphenyls (TetraBB)	ND
Pentabrominated Biphenyls (PentaBB)	ND
Hexabrominated Biphenyls (HexaBB)	ND
Heptabrominated Biphenyls (HeptaBB)	ND
Octabrominated Biphenyls (OctaBB)	ND
Nonabrominated Biphenyls (NonaBB)	ND
Decabrominated Biphenyl (DecaBB)	ND
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
Monobrominated Diphenyl Ethers (MonoBDE)	ND
Dibrominated Diphenyl Ethers (DiBDE)	ND
Tribrominated Diphenyl Ethers (TriBDE)	ND
Tetrabrominated Diphenyl Ethers (TetraBDE)	ND
Pentabrominated Diphenyl Ethers (PentaBDE)	ND
Hexabrominated Diphenyl Ethers (HexaBDE)	ND
Heptabrominated Diphenyl Ethers (HeptaBDE)	ND
Octabrominated Diphenyl Ethers (OctaBDE)	ND
Nonabrominated Diphenyl Ethers (NonaBDE)	ND
Decabrominated Diphenyl Ether (DecaBDE)	ND

Remark:
 mg/kg = Milligram Per Kilogram = ppm
 ND = Not Detected

Page 2 Of 5

Intertek Testing Services Wuxi Ltd.

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 Wuxi 214101, Jiangsu, China

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Annex 4: Analysis Result of Ni-plated Wafer (Page 3 of 5)



TEST REPORT

Number : WUXH00005703

Tests Conducted (As Requested By The Applicant)

(B)RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr ⁶⁺)	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)

The Above Limits Were Quoted From 2002/95/EC And Amendment 2005/618/EC For Homogeneous Material.

(C) Test Method:

Testing Item	Testing Method	Reporting Limit
Cadmium (Cd)Content	With Reference To IEC 62321 Edition 1.0: 2008, By Acid Digestion And Determined By ICP-OES	2 mg/kg
Lead (Pb)Content	With Reference To IEC 62321 Edition 1.0: 2008, By Acid Digestion And Determined By ICP-OES	2 mg/kg
Mercury (Hg)Content	With Reference To IEC 62321 Edition 1.0: 2008, By Acid Digestion And Determined By ICP-OES	2 mg/kg
Chromium (VI) (Cr ⁶⁺) Content (For Non-Metal)	With Reference To IEC 62321 Edition 1.0: 2008, By Alkaline Digestion And Determined By UV-VIS Spectrophotometer	1 mg/kg
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With Reference To IEC IEC 62321 Edition 1.0: 2008, By Solvent Extraction And Determined By GC/MS And Further HPLC Confirmation When Necessary.	5 mg/kg

Date Sample Received: Aug 01, 2011

Testing Period: Aug 01, 2011 To Aug 04, 2011

Page 3 Of 5

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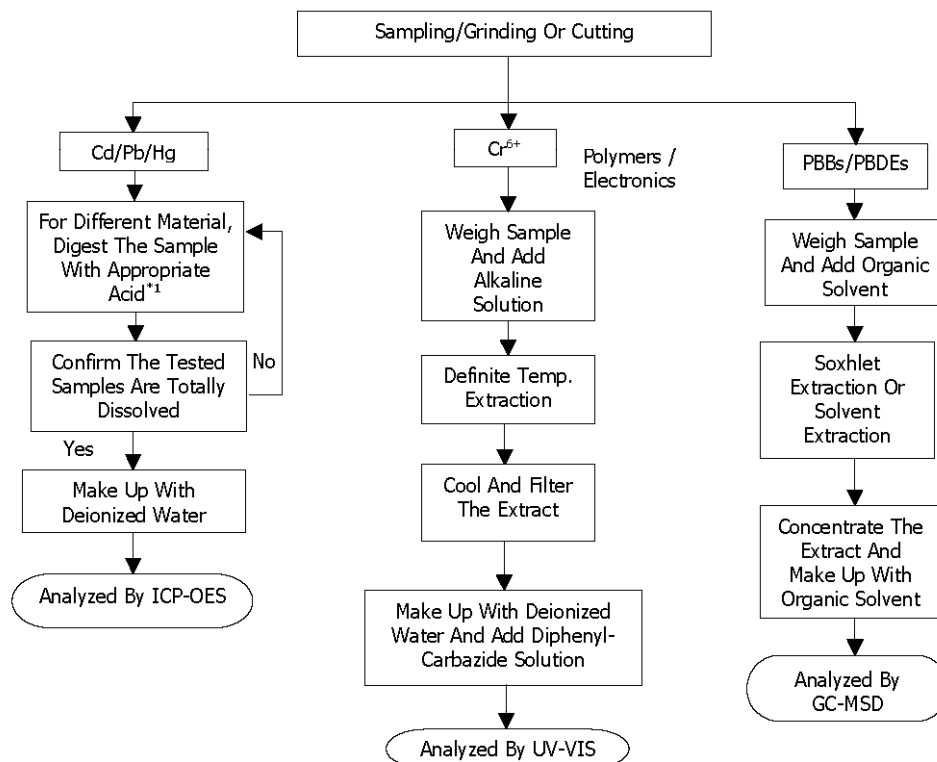
Annex 4: Analysis Result of Ni-plated Wafer (Page 4 of 5)



TEST REPORT

Number : WUXH00005703

Tests Conducted (As Requested By The Applicant)

 (D) Measurement Flowchart:
 Reference Standard: IEC 62321 Edition 1.0: 2008

 Chemist: Inorganic (Ann Luo/Fred Wang/Ally Wan)
 Organic (Jenny Xu/Cherry Sun)

Remarks:

*1: List Of Appropriate Acid:

Material	Acid Added For Digestion
Polymers	HNO ₃ , HCL, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCL, HF
Electronics	HNO ₃ , HCL, H ₂ O ₂ , HBF ₄

Page 4 Of 5

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Annex 4: Analysis Result of Ni-plated Wafer (Page 5 of 5)

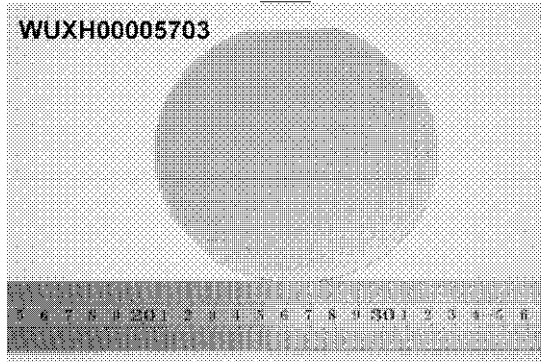
Intertek

TEST REPORT

Number : WUXH00005703

Tests Conducted (As Requested By The Applicant)

Photo



Page 5 Of 5

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Annex 5: Analysis Result of Passivation Glass (Page 1 of 7)

TEST REPORT

Number : WUXH00005704

Applicant : CONCORD SEMICONDUCTOR(WUXI) CO., LTD.
EAST 1#, ZHENFA 6 ROAD, SHUO FANG
INDUSTRIAL PARK WUXI NATIONAL HIGH-TECH
DEVELOPMENT ZONE, WUXI, JIANGSU, CHINA
Attn : ZHANG XIAOPENG

Date : Aug 05, 2011

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **White Power.**

Item Name : Wafer Passivation.
Vendor : Propriety.
Component Or Part No. : Propriety.
Test Item : Cd, Pb, Hg, CrVI, PBBs, PBDEs, F, Cl, Br, I.

Tests Conducted:

As Requested By The Applicant, For Details Refer To Attached Pages

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.



Jessica Lu
General Manager

Page 1 Of 7

Intertek Testing Services Wuxi Ltd.No.8 Fubei Road, Xishan Economic Development Zone,
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Annex 5: Analysis Result of Passivation Glass (Page 2 of 7)



TEST REPORT

Number : WUXH00005704

Tests Conducted (As Requested By The Applicant)

- 1 RoHS Directives Test
 - (A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND
Lead (Pb) Content (mg/kg)	185100
Mercury (Hg) Content (mg/kg)	ND
Chromium (VI) (Cr ^{VI}) Content (mg/kg)(For Non-Metal)	ND
Polybrominated Biphenyls (PBBs)(mg/kg)	
Monobrominated Biphenyls (MonoBB)	ND
Dibrominated Biphenyls (DiBB)	ND
Tribrominated Biphenyls (TriBB)	ND
Tetrabrominated Biphenyls (TetraBB)	ND
Pentabrominated Biphenyls (PentaBB)	ND
Hexabrominated Biphenyls (HexaBB)	ND
Heptabrominated Biphenyls (HeptaBB)	ND
Octabrominated Biphenyls (OctaBB)	ND
Nonabrominated Biphenyls (NonaBB)	ND
Decabrominated Biphenyl (DecaBB)	ND
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
Monobrominated Diphenyl Ethers (MonoBDE)	ND
Dibrominated Diphenyl Ethers (DiBDE)	ND
Tribrominated Diphenyl Ethers (TriBDE)	ND
Tetrabrominated Diphenyl Ethers (TetraBDE)	ND
Pentabrominated Diphenyl Ethers (PentaBDE)	ND
Hexabrominated Diphenyl Ethers (HexaBDE)	ND
Heptabrominated Diphenyl Ethers (HeptaBDE)	ND
Octabrominated Diphenyl Ethers (OctaBDE)	ND
Nonabrominated Diphenyl Ethers (NonaBDE)	ND
Decabrominated Diphenyl Ether (DecaBDE)	ND

Remark:
 mg/kg = Milligram Per Kilogram = ppm
 ND = Not Detected
 # = The Result Is For Reference Only.

Page 2 Of 7

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Annex 5: Analysis Result of Passivation Glass (Page 3 of 7)



TEST REPORT

Number : WUXH00005707

Tests Conducted (As Requested By The Applicant)

(B)RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr ⁶⁺)	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)

The Above Limits Were Quoted From 2002/95/EC And Amendment 2005/618/EC For Homogeneous Material.

(C) Test Method:

Testing Item	Testing Method	Reporting Limit
Cadmium (Cd)Content	With Reference To IEC 62321 Edition 1.0: 2008, By Acid Digestion And Determined By ICP-OES	2 mg/kg
Lead (Pb)Content	With Reference To IEC 62321 Edition 1.0: 2008, By Acid Digestion And Determined By ICP-OES	2 mg/kg
Mercury (Hg)Content	With Reference To IEC 62321 Edition 1.0: 2008, By Acid Digestion And Determined By ICP-OES	2 mg/kg
Chromium (VI) (Cr ⁶⁺) Content (For Non-Metal)	With Reference To IEC 62321 Edition 1.0: 2008, By Alkaline Digestion And Determined By UV-VIS Spectrophotometer	1 mg/kg
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With Reference To IEC IEC 62321 Edition 1.0: 2008, By Solvent Extraction And Determined By GC/MS And Further HPLC Confirmation When Necessary.	5 mg/kg

Date Sample Received: Aug 01, 2011

Testing Period: Aug 01, 2011 To Aug 04, 2011

Page 3 Of 7

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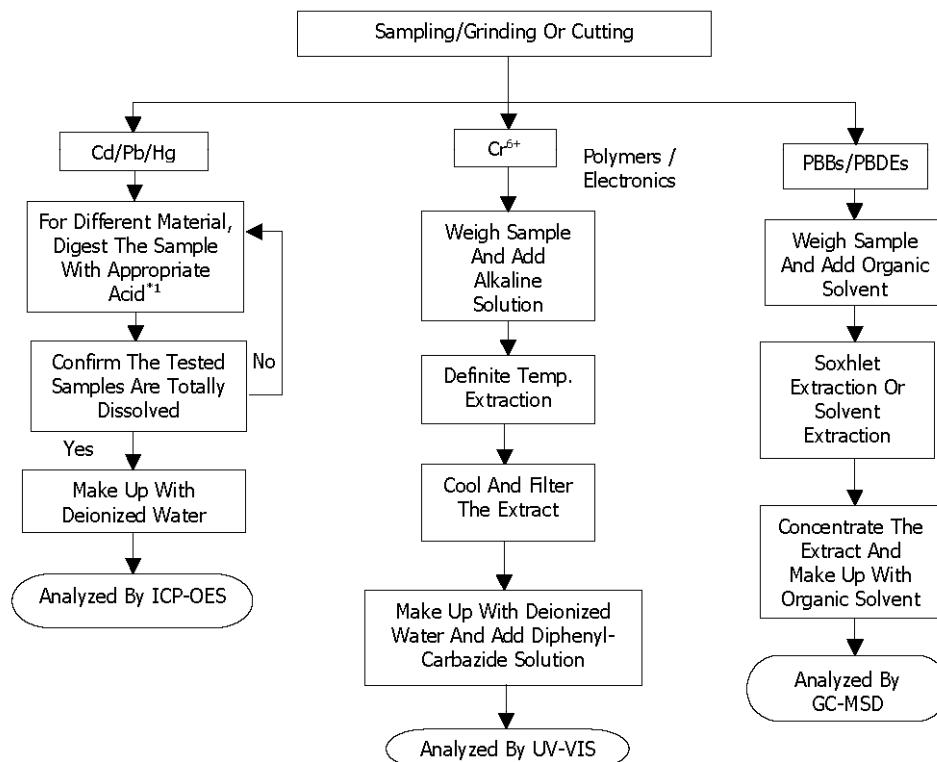
Annex 5: Analysis Result of Passivation Glass (Page 4 of 7)



TEST REPORT

Number : WUXH00005704

Tests Conducted (As Requested By The Applicant)

 (D) Measurement Flowchart:
 Reference Standard: IEC 62321 Edition 1.0: 2008

 Chemist: Inorganic (Ann Luo/Fred Wang/Ally Wan)
 Organic (Jenny Xu/Cherry Sun)

Remarks:

*1: List Of Appropriate Acid:

Material	Acid Added For Digestion
Polymers	HNO ₃ , HCL, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCL, HF
Electronics	HNO ₃ , HCL, H ₂ O ₂ , HBF ₄

 2 Halogen Test
 (I) Test Result Summary :

Page 4 Of 7

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Annex 5: Analysis Result of Passivation Glass (Page 5 of 7)



TEST REPORT

Number : WUXH00005704

Tests Conducted (As Requested By The Applicant)

Halogen Content:

Testing Item	Result (ppm)
Fluorine (F) Content	ND
Chlorine (Cl) Content	ND
Bromine (Br) Content	ND
Iodine (I) Content	ND

 Remarks : ppm = Parts Per Million = mg/kg
 ND = Not Detected

 Date Sample Received: Aug 01, 2011
 Testing Period: Aug 01, 2011 To Aug 05, 2011

(II) Test Method :

Testing Item	Testing Method	Reporting Limit
Halogen (F, Cl, Br, I) Content	With Reference To EN 14582:2007 By Combustion In A Calorimetric Bomb And Determined By Ion Chromatography	50 ppm

Remarks : Reporting Limit = Quantitation Limit Of Analyte In Sample

Page 5 Of 7

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Annex 5: Analysis Result of Passivation Glass (Page 6 of 7)

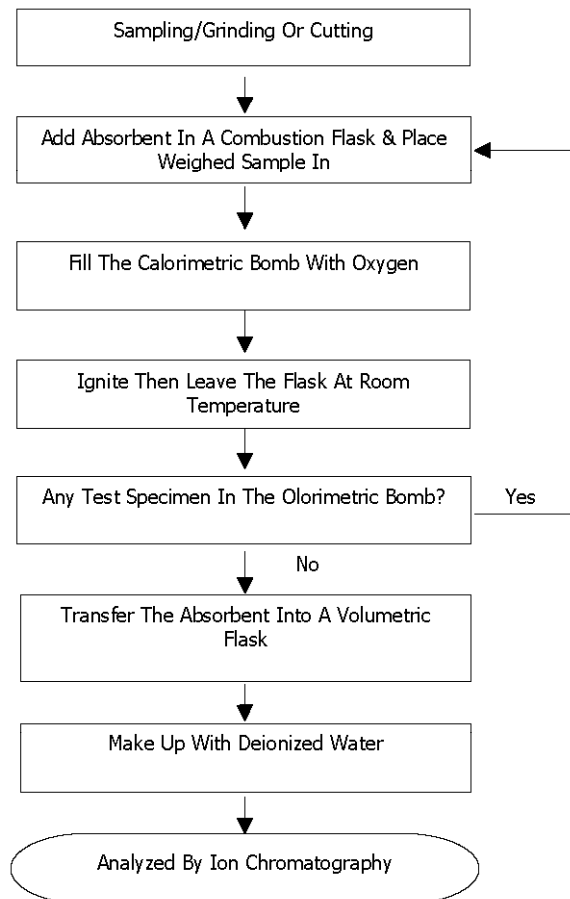


TEST REPORT

Number : WUXH00005704

Tests Conducted (As Requested By The Applicant)

(III) Measurement Flowchart:
Test For Halogen Content Reference Method: EN 14582:2007



Chemist: Fred Wang/ Ally Wan Ally Wan

Annex 5: Analysis Result of Passivation Glass (Page 7 of 7)

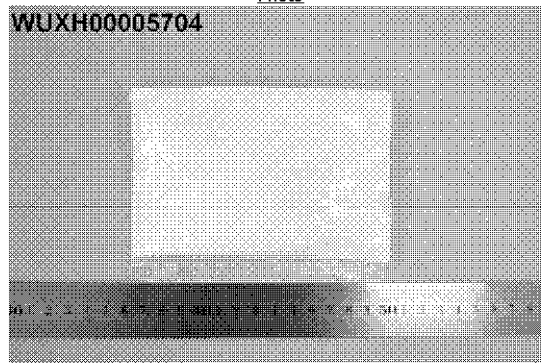
Intertek

TEST REPORT

Number : WUXH00005704

Tests Conducted (As Requested By The Applicant)

Photo



Page 7 Of 7

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Annex 6: Analysis Result of Die Bonding Solder (Page 1 of 5)**Test Report**

No: 10227324(5)

Date: 09-Mar-11

Page 1 of 5

Heraeus Materials Singapore Pte Ltd
No. 2 Corporation Road, #06-15/16/17 Corporation Place, Singapore 618494

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

Sample Description : PbSn5Ag2.5 Solder Paste

Sample Receiving Date : 01-Mar-11
Testing Period : 01-Mar-11 to 08-Mar-11

Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

Test Result(s) : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of
SGS Testing & Control Services Singapore Pte Ltd



Y.C. Tham
Laboratory Manager

Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944
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Annex 6: Analysis Result of Die Bonding Solder (Page 2 of 5)


Test Report

No: 10227324(5)

Date: 09-Mar-11

Page 2 of 5

Test Result(s):

Sample Description : PbSn5Ag2.5 Solder Paste

Test Item(s):	Unit	Method	Results	MDL	RoHS Limit
Cadmium(Cd)	mg/kg	With reference to IEC62321, Ed1:2008. Analysis was performed by ICP/AES	n.d.	2	100
Lead (Pb)	mg/kg	With reference to IEC62321, Ed1:2008. Analysis was performed by ICP/AES	886000 [†]	2	1000
Mercury (Hg)	mg/kg	With reference to IEC62321, Ed1:2008. Analysis was performed by ICP/AES	n.d.	2	1000
Hexavalent Chromium (CrVI)	mg/kg	With reference to IEC62321, Ed1:2008. Analysis was performed by UV/Vis Spectrometry	n.d.	2	1000
Sum of PBBs	mg/kg		n.d.	-	1000
Monobromobiphenyl	mg/kg		n.d.	5	-
Dibromobiphenyl	mg/kg		n.d.	5	-
Tribromobiphenyl	mg/kg		n.d.	5	-
Tetrabromobiphenyl	mg/kg		n.d.	5	-
Hexabromobiphenyl	mg/kg		n.d.	5	-
Pentabromobiphenyl	mg/kg		n.d.	5	-
Heptabromobiphenyl	mg/kg		n.d.	5	-
Octabromobiphenyl	mg/kg		n.d.	5	-
Nonabromobiphenyl	mg/kg		n.d.	5	-
Decabromobiphenyl	mg/kg	With reference to IEC62321, Ed1:2008. Analysis was performed by GC/MS	n.d.	5	-
Sum of PBDEs	mg/kg		n.d.	-	1000
Monobromodiphenyl ether	mg/kg		n.d.	5	-
Dibromodiphenyl ether	mg/kg		n.d.	5	-
Tribromodiphenyl ether	mg/kg		n.d.	5	-
Tetrabromodiphenyl ether	mg/kg		n.d.	5	-
Pentabromodiphenyl ether	mg/kg		n.d.	5	-
Hexabromodiphenyl ether	mg/kg		n.d.	5	-
Heptabromodiphenyl ether	mg/kg		n.d.	5	-
Octabromodiphenyl ether	mg/kg		n.d.	5	-
Nonabromodiphenyl ether	mg/kg		n.d.	5	-
Decabromodiphenyl ether ##	mg/kg		n.d.	5	-

Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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Annex 6: Analysis Result of Die Bonding Solder (Page 3 of 5)**SGS****Test Report**

No: 10227324(5)

Date: 09-Mar-11

Page 3 of 5

- Note:
- (1) mg/kg = ppm ; 0.1wt% = 1000ppm
 - (2) n.d.= Not Detected
 - (3) MDL = Method Detection Limit
 - (4) ## = The exemption of DecaBDE in polymeric application according 2005/717/EC was overruled by the European Court of Justice by its decision of 01.04.2008. Subsequently DecaBDE will be included in the sum of PBDE after 01.07.2008.
 - (5) "-" = Not regulated
 - (6) * : Exceeds limit

*Exemption: The received sample is exempted under directive 2002/95/EC Annex Article 7: lead in high melting temperature solder type solders (i.e. tin-lead solder alloys containing more than 85% of lead).

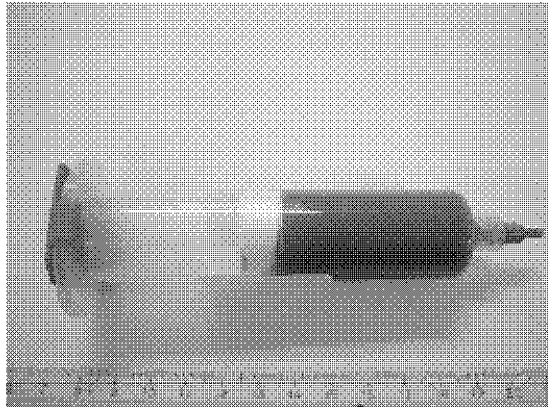
Remarks: Sample received was totally dissolved by preconditioning method.

Lab Analyst(s): Jay, Jojo and Eileen

Sample photo:

Sample Description : PbSn5Ag2.5 Solder Paste

SGS authenticate the photo on original report only



Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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Annex 6: Analysis Result of Die Bonding Solder (Page 4 of 5)



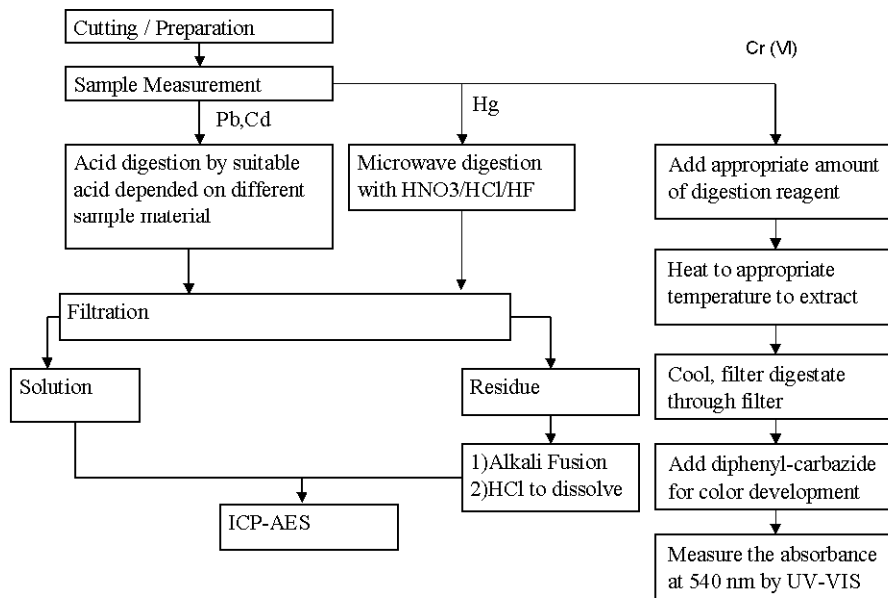
Test Report

No: 10227324(5)

Date: 09-Mar-11

Page 4 of 5

Process Flow of IEC 62321 (Pb, Cd, Hg & Cr⁶⁺)



Remarks: Sample received was totally dissolved by preconditioning method. (CrVI method excluded)

Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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Annex 6: Analysis Result of Die Bonding Solder (Page 5 of 5)**SGS****Test Report**

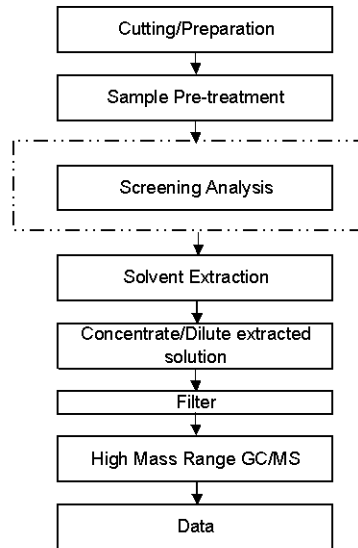
No: 10227324(5)

Date: 09-Mar-11

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Process Flow of PBBs and PBDEs by GC/MS (IEC 62321)

First Testing Process → Optional screen process Confirmation process ...→



End of Report

Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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Annex 7: Applicable RoHS exemptions

1.7.2011

EN

Official Journal of the European Union

L 174/103

	Exemption	Scope and dates of applicability
6(a)	Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0,35 % lead by weight	
6(b)	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	
6(c)	Copper alloy containing up to 4 % lead by weight	
7(a)	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)	
7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	
7(c)-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectric devices, or in a glass or ceramic matrix compound	
7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	
7(c)-III	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	Expires on 1 January 2013 and after that date may be used in spare parts for FEE placed on the market before 1 January 2013
8(a)	Cadmium and its compounds in one shot pellet type thermal cut-offs	Expires on 1 January 2012 and after that date may be used in spare parts for FEE placed on the market before 1 January 2012
8(b)	Cadmium and its compounds in electrical contacts	
9	Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution	
9(b)	Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	
11(a)	Lead used in C-press compliant pin connector systems	May be used in spare parts for FEE placed on the market before 24 September 2010
11(b)	Lead used in other than C-press compliant pin connector systems	Expires on 1 January 2013 and after that date may be used in spare parts for FEE placed on the market before 1 January 2013
12	Lead as a coating material for the thermal conduction module C-ring	May be used in spare parts for FEE placed on the market before 24 September 2010
13(a)	Lead in white glasses used for optical applications	
13(b)	Cadmium and lead in filter glasses and glasses used for reflectance standards	
14	Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80 % and less than 85 % by weight	Expired on 1 January 2011 and after that date may be used in spare parts for FEE placed on the market before 1 January 2011