



## Certificate of non-use of The Controlled Substances

Company name            Littelfuse, Inc.

Product Covered        SIDACTor<sup>®</sup> 6-PIN (MS-013) Package, RoHS-Compliant series  
                                  BattraX<sup>®</sup> 6-PIN (MS-013) Package, RoHS-Compliant series

Issue Date                December 3, 2010

It is hereby certified by Littelfuse, LP, that there is neither RoHS (EU Directive 2002/95/EC)-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 SIDACTor<sup>®</sup> and BattraX<sup>®</sup> 6-PIN (MS-013) Package RoHS-Compliant series products supplied by Littelfuse, Inc. Actual values in this report are taken from P0644UCLRP and the result is applicable to all SIDACTor<sup>®</sup> 6-PIN Package RoHS-Compliant series and all BattraX<sup>®</sup> 6-PIN Package, RoHS-Compliant series supplied by Littelfuse, L.P. Please see page 2 for the complete list of the part number covered by this report.

< Homogeneous Materials used >

Please see figure and table 1 on page 3 and table 2 on page 4 of this document.

(2) The analytical data on all measurable substances

Please see annex 1 through 11, attached to this document

Remarks :

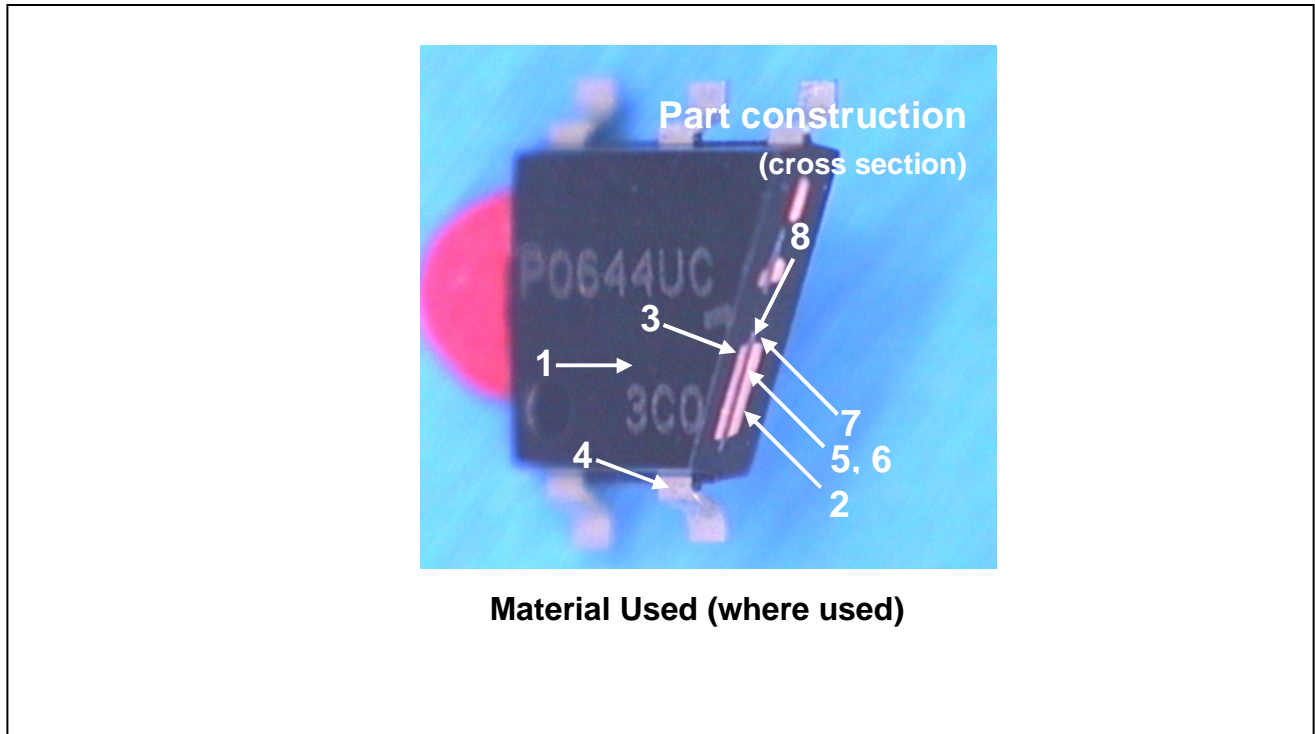
**1. Pb (lead) contained in die bonding solder (item 8 on page 3) and passivation glass (item 7) to be categorized as exempt in RoHS Annex 5 and 7.**

**Please refer to Annex 8 of this report for the extract of the applicable exemptions of RoHS (EU Directive 2002/95/EC)**



**Littelfuse Part Number covered by this report**

Standard (Catalog) Part Number			
A1215UBLRP (or TP)	P0641UALRP (or TP)	P1803UALRP (or TP)	P3104UCMCLRP (or TP)
A1220UA4LRP (or TP)	P0641UCLRP (or TP)	P1803UBLRP (or TP)	P3203UALRP (or TP)
A1220UC4LRP (or TP)	P0644UALRP (or TP)	P1803UCLRP (or TP)	P3203UBLRP (or TP)
A1225UC4LRP (or TP)	P0644UBLRP (or TP)	P1804UALRP (or TP)	P3203UCLRP (or TP)
A2106UA6LRP (or TP)	P0644UCLRP (or TP)	P1804UBLRP (or TP)	P3206UALRP (or TP)
A2106UC3LRP (or TP)	P0644UCMCLRP (or TP)	P1804UCLRP (or TP)	P3206UBLRP (or TP)
A2106UC6LRP (or TP)	P0721UALRP (or TP)	P1804UCMCLRP (or TP)	P3206UCLRP (or TP)
A3406UC6LRP (or TP)	P0721UCLRP (or TP)	P1806UALRP (or TP)	P3403UALRP (or TP)
A5030UC6LRP (or TP)	P0724UALRP (or TP)	P1806UBLRP (or TP)	P3403UBLRP (or TP)
	P0724UBLRP (or TP)	P1806UCLRP (or TP)	P3403UCLRP (or TP)
	P0724UCLRP (or TP)	P2103UALRP (or TP)	P3406UALRP (or TP)
B1101UA4LRP (or TP)	P0724UCMCLRP (or TP)	P2103UBLRP (or TP)	P3406UBLRP (or TP)
B1101UALRP (or TP)	P0901UALRP (or TP)	P2103UCLRP (or TP)	P3406UCLRP (or TP)
B1101UC4LRP (or TP)	P0901UCLRP (or TP)	P2106UALRP (or TP)	P3504UALRP (or TP)
B1101UCLRP (or TP)	P0904UALRP (or TP)	P2106UBLRP (or TP)	P3504UBLRP (or TP)
B1161UA4LRP (or TP)	P0904UBLRP (or TP)	P2106UCLRP (or TP)	P3504UCLRP (or TP)
B1161UALRP (or TP)	P0904UCLRP (or TP)	P2304UALRP (or TP)	P3504UCMCLRP (or TP)
B1161UC4LRP (or TP)	P0904UCMCLRP (or TP)	P2304UBLRP (or TP)	P5103UALRP (or TP)
B1161UCLRP (or TP)	P1101UALRP (or TP)	P2304UCLRP (or TP)	P5103UBLRP (or TP)
B1201UA4LRP (or TP)	P1101UCLRP (or TP)	P2304UCMCLRP (or TP)	P5103UCLRP (or TP)
B1201UALRP (or TP)	P1104UALRP (or TP)	P2353UALRP (or TP)	P5106UALRP (or TP)
B1201UC4LRP (or TP)	P1104UBLRP (or TP)	P2353UBLRP (or TP)	P5106UBLRP (or TP)
B1201UCLRP (or TP)	P1104UCLRP (or TP)	P2353UCLRP (or TP)	P5106UCLRP (or TP)
B3104UALRP (or TP)	P1104UCMCLRP (or TP)	P2356UALRP (or TP)	
B3104UCLRP (or TP)	P1304UALRP (or TP)	P2356UBLRP (or TP)	
B3164UALRP (or TP)	P1304UBLRP (or TP)	P2356UCLRP (or TP)	
B3164UCLRP (or TP)	P1304UCLRP (or TP)	P2604UALRP (or TP)	
B3204UALRP (or TP)	P1304UCMCLRP (or TP)	P2604UBLRP (or TP)	
B3204UCLRP (or TP)	P1504UALRP (or TP)	P2604UCLRP (or TP)	<b>SPECIAL DEVICE P/N</b>
	P1504UBLRP (or TP)	P2604UCMCLRP (or TP)	Any Special P/N which has base standard P/N listed in this table.
	P1504UCLRP (or TP)	P2703UALRP (or TP)	
P0084UALRP (or TP)	P1504UCMCLRP (or TP)	P2703UBLRP (or TP)	
P0084UAMCLRP (or TP)	P1553UALRP (or TP)	P2703UCLRP (or TP)	
P0084UCLRP (or TP)	P1553UBLRP (or TP)	P2706UALRP (or TP)	
P0084UCMCLRP (or TP)	P1553UCLRP (or TP)	P2706UBLRP (or TP)	
P0304UALRP (or TP)	P1556UALRP (or TP)	P2706UCLRP (or TP)	
P0304UAMCLRP (or TP)	P1556UBLRP (or TP)	P3104UALRP (or TP)	
P0304UCLRP (or TP)	P1556UCLRP (or TP)	P3104UBLRP (or TP)	
P0304UCMCLRP (or TP)	P1701UCLRP (or TP)	P3104UCLRP (or TP)	



**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	Clip	copper alloy	metal	annex 3
4	Matte-Tin plating	Tin	metal	annex 4, tested as plating cathode
5	Silicon die	silicon	metal	annex 5, tested as Nickel-plated wafer.
6	Nickel electrode	nickel	metal	
7	Passivation glass	glass	glass	annex 6. Pb in this glass is exempted by RoHS Annex 7.
8	Die bonding solder	solder	metal	annex 7. Pb in this solder is exempted by RoHS Annex 5.

**Table 2: RoHS-regulated substance in raw materials**

Components	Analysis Result					
	Cd Cadmium	Cr Chromium	Hg Mercury	Pb Lead	PBB	PBDE
<b>As Component Total</b> (Values of P0644UCLRP* <sup>1</sup> as representative of SIDACTor <sup>®</sup> & BATTRAX <sup>®</sup> , 6-PIN Package)	< 2ppm	< 2ppm	< 2ppm	<10ppm* <sup>2</sup> (5.0%* <sup>3</sup> )	< 5ppm	< 5ppm
<b>Epoxy Resin compound</b> (mixture of phenolix resin, epoxy resin, filler and Sb <sub>2</sub> O <sub>3</sub> as fire retardant) See Annex 1 for the detail.	< 1ppm	< 1ppm	< 1ppm	< 1ppm	< 5ppm	< 5ppm
<b>Lead frame / Clip</b> (Copper Alloy, CDA194 / 110) See Annex 2 & 3 for the detail.	< 2ppm	< 2ppm	< 2ppm	<2ppm	< 5ppm	< 5ppm
<b>Outside lead finish</b> (Matte-Tin plated, Sn 100%) See Annex 4 for the detail.	< 2ppm	< 2ppm	< 2ppm	24ppm* <sup>4</sup>	< 5ppm	< 5ppm
<b>Silicon Die</b> (Silicon + Ni electrode) See Annex 5 for the detail.	< 2ppm	< 2ppm	< 2ppm	<2ppm	< 5ppm	< 5ppm
<b>Passivation Glass</b> See Annex 6 for the detail.	< 2ppm	< 2ppm	< 2ppm	40% * <sup>5</sup>	< 5ppm	< 5ppm
<b>Die Bonding Solder</b> (Pb/Sn=90/10) See Annex 7 for the detail.	< 2ppm	< 2ppm	< 2ppm	90% * <sup>6</sup>	< 5ppm	< 5ppm

- \*1 Other products may contain equal or less amount of Pb as P0644UCLRP 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 5.0wt% or 20.3mg of Pb (lead) content overall, including the RoHS-exempted use of Pb
- \*4 Pb (lead) contained in copper piece parts and outside finish is not exempted from restriction by RoHS, but considered as process contamination. Littelfuse does not add Pb (lead) intentionally.
- \*5 Pb (lead) contained in passivation glass is exempted from restriction by RoHS Annex 5.
- \*6 Pb (lead) contained in die bonding solder is exempted from restriction by RoHS Annex 7, first item.

**Please refer to Annex 8 of this report for the applicable exemptions of RoHS (EU Directive 2002/95/EC)**

# Annex 1: Analysis Result of Molding Compound (Page 1 of 6)

SGS

Validity unknown  
 For Question  
 Please Contact with SGS  
[www.tw.sgs.com](http://www.tw.sgs.com)

**Test Report**      No. : KA/2010/60072      Date : 2010/06/08      Page : 1 of 6

NITTO DENKO (TAIWAN) CORPORATION  
 ROOM N-712, NO. 96, CHUNG SHAN N. ROAD, SEC. 2, TAIPEI, TAIWAN

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

Sample Description	:	EPOXY MOLDING COMPOUND
Style/Item No.	:	MP/ST-8000C series
Sample Receiving Date	:	2010/06/02
Testing Period	:	2010/06/02 TO 2010/06/08

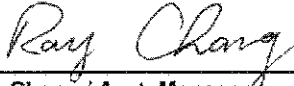
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**Test Requested** : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

**Test Method** : With reference to IEC 62321: 2008 Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products.

- (1) Determination of Cadmium by ICP-AES.
- (2) Determination of Lead by ICP-AES.
- (3) Determination of Mercury by ICP-AES.
- (4) Determination of Hexavalent Chromium by UV/Vis Spectrometry.
- (5) Determination of PBB and PBDE by GC/MS.

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

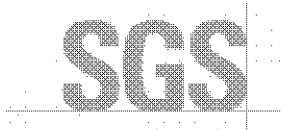


**Ray Chang / Asst. Manager**  
 Signed for and on behalf of  
 SGS Taiwan Limited

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 台灣檢驗科技股份有限公司      ☎ (886-7) 301-2121      ☎ (886-7) 301-0867      [www.tw.sgs.com](http://www.tw.sgs.com)  
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# Annex 1: Analysis Result of Molding Compound (Page 2 of 6)



## Test Report

No. : KA/2010/60072 Date : 2010/06/08 Page : 2 of 6

NITTO DENKO (TAIWAN) CORPORATION  
ROOM N-712, NO. 96, CHUNG SHAN N. ROAD, SEC. 2, TAIPEI, TAIWAN



Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2
<b>Sum of PBBs</b>	(5)	n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
<b>Sum of PBDEs</b>		n.d.	-
Monobromodiphenyl ether		n.d.	5
Dibromodiphenyl ether		n.d.	5
Tribromodiphenyl ether		n.d.	5
Tetrabromodiphenyl ether		n.d.	5
Pentabromodiphenyl ether		n.d.	5
Hexabromodiphenyl ether		n.d.	5
Heptabromodiphenyl ether		n.d.	5
Octabromodiphenyl ether		n.d.	5
Nonabromodiphenyl ether		n.d.	5
Decabromodiphenyl ether		n.d.	5

### TEST PART DESCRIPTION:

NO.1 : BLACK EPOXY MOLDING COMPOUND

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**Annex 1: Analysis Result of Molding Compound (Page 3 of 6)****Test Report**

No. : KA/2010/60072    Date : 2010/06/08    Page : 3 of 6

NITTO DENKO (TAIWAN) CORPORATION  
ROOM N-712, NO. 96, CHUNG SHAN N. ROAD, SEC. 2, TAIPEI, TAIWAN

- Note :
1. mg/kg = ppm ; 0.1wt% = 1000ppm
  2. n.d. = Not Detected
  3. MDL = Method Detection Limit
  4. "-" = Not Regulated

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## Annex 1: Analysis Result of Molding Compound (Page 4 of 6)



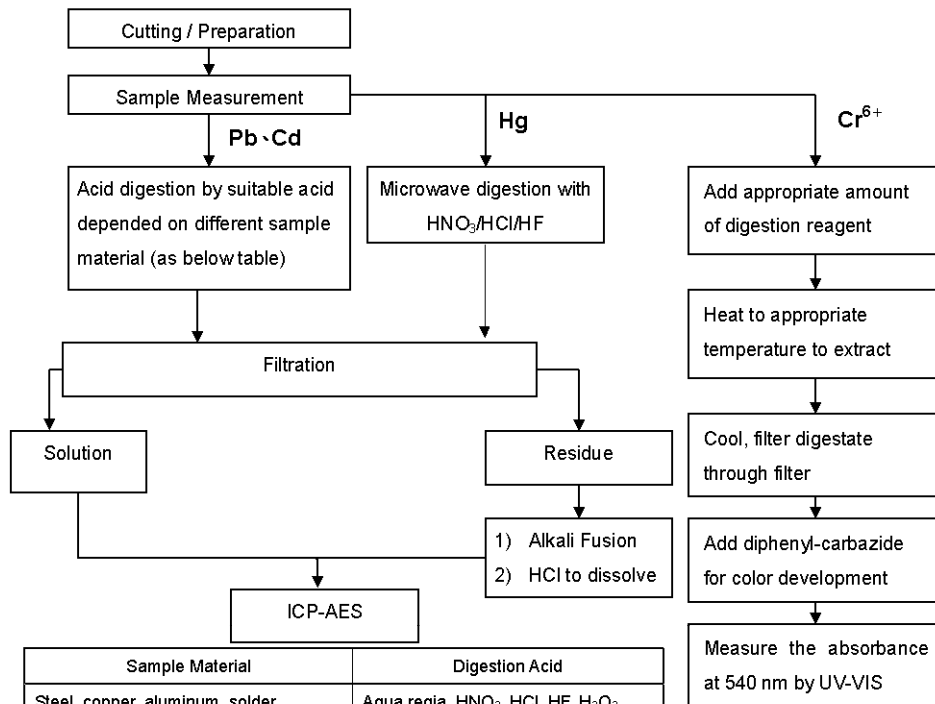
### Test Report

No. : KA/2010/60072 Date : 2010/06/08 Page : 4 of 6

NITTO DENKO (TAIWAN) CORPORATION  
ROOM N-712, NO. 96, CHUNG SHAN N. ROAD, SEC. 2, TAIPEI, TAIWAN



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded)
- 2) Name of the person who made measurement: Alex Chang
- 3) Name of the person in charge of measurement: Ray Chang



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

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## Annex 1: Analysis Result of Molding Compound (Page 5 of 6)



### Test Report

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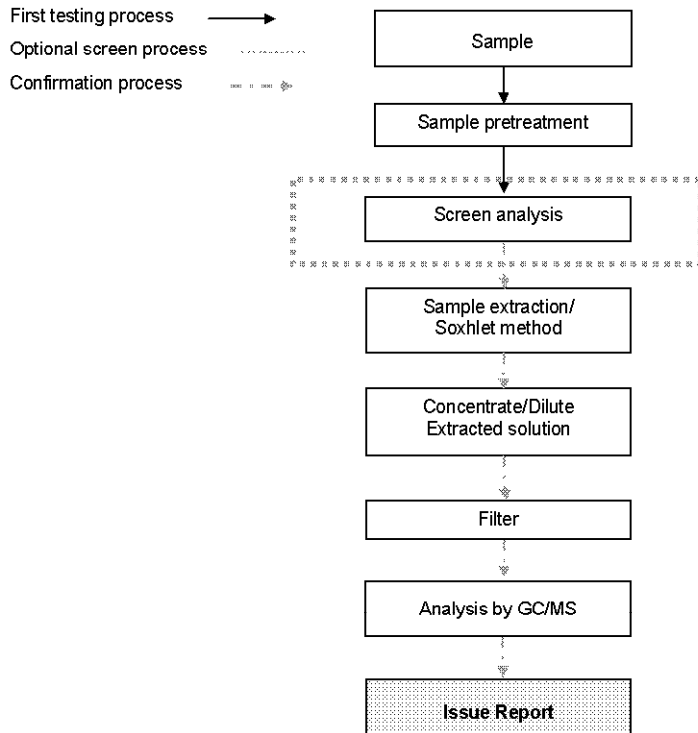
NITTO DENKO (TAIWAN) CORPORATION  
ROOM N-712, NO. 96, CHUNG SHAN N. ROAD, SEC. 2, TAIPEI, TAIWAN



#### PBB/PBDE analytical FLOW CHART

1) Name of the person who made measurement: Anson Tsao

2) Name of the person in charge of measurement: Ray Chang



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## Annex 1: Analysis Result of Molding Compound (Page 6 of 6)



### Test Report

No. : KA/2010/60072    Date : 2010/06/08    Page : 6 of 6

NITTO DENKO (TAIWAN) CORPORATION  
ROOM N-712, NO. 96, CHUNG SHAN N. ROAD, SEC. 2, TAIPEI, TAIWAN



\*\* End of Report \*\*

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**Annex 2: Analysis Result of Lead frame (Page 1 of 11)****Test Report**

No. 2103719/EC

Date : Jun 09 2010

Page 1 of 11

POSSEHL ELECTRONICS HK LTD  
POSSEHL BUILDING,  
18 MA KOK STREET,  
TSUEN WAN,  
N.T.  
HONG KONG

This report supersedes all previous documents bearing the test report number 2103678/EC.

The following sample was submitted and identified on behalf of the client as:  
POSSEHL ELECTRONICS C19400 (A194 / C194) COPPER METAL

SGS Job No. : 1361665  
Manufacturer : POSSEHL ELECTRONICS  
Sample Receiving Date : MAY 27 2010  
Testing Period : MAY 27 – JUN 08 2010

Test Requested : Selected test (s) as requested by client.

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

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

Conclusion : (1) Based on the performed tests on submitted sample, the results comply with the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of  
SGS Hong Kong Ltd



Chow Fuk Fung  
Chemist

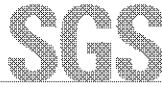
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## Annex 2: Analysis Result of Lead frame (Page 2 of 11)



### Test Report

No. 2103719/EC

Date : Jun 09 2010

Page 2 of 11

Test result:

ID for sample 1 : 4111662S001

Description for sample 1 : Coppery Metal

(1)

#### RoHS Directive 2002/95/EC

Test Item(s) :	Unit	Test Method	Results	MDL	Limit
Cadmium(Cd)	mg/kg	With reference to IEC 62321:2008 and performed by ICP-OES	n.d.	2	100
Lead (Pb)	mg/kg	With reference to IEC 62321:2008 and performed by ICP-OES	n.d.	5	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321:2008 and performed by ICP-OES	n.d.	2	1000
Hexavalent Chromium (CrVI) by spot-test/ boiling-water-extraction	-	With reference to IEC 62321:2008	Negative	-	#
<b>Sum of PBBs</b>	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	<b>n.d.</b>	<b>-</b>	<b>1000</b>
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
<b>Sum of PBDEs</b>	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	<b>n.d.</b>	<b>-</b>	<b>1000</b>
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5	

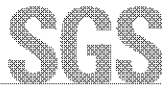
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## Annex 2: Analysis Result of Lead frame (Page 3 of 11)



### Test Report

No. 2103719/EC

Date : Jun 09 2010

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			performed by GC-MS	
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5
Decabromodiphenyl ether ##	mg/kg	With reference to IEC 62321:2008 and performed by GC-MS	n.d.	5

#### Note :

- (1) mg/kg = ppm; 0.1wt% = 1000 ppm
- (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) # = Negative means the absence of CrVI on the tested areas;  
Positive means the presence of CrVI on the tested areas.
- (6) " - " = Not regulated
- (7) The Cd, Pb and Hg contents test on metal sample were dissolved totally by pre-conditioning method according to flow chart.

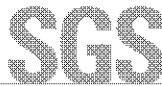
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## Annex 2: Analysis Result of Lead frame (Page 4 of 11)



### Test Report

No. 2103719/EC

Date : Jun 09 2010

Page 4 of 11

Test result:

ID for sample 1 : 4111662S001

Description for sample 1 : Coppery Metal

(2)

#### Heavy Metal Test

<u>Test Item(s) :</u>	<u>Unit</u>	<u>Test Method</u>	<u>Results</u>	<u>MDL</u>
Antimony (Sb)	%	With reference to SGS in-house Method (acid-digestion), and performed by ICP-OES/ AAS	n.d.	0.001

Note :

- (1) mg/kg = ppm; 0.1wt% = 1000 ppm
- (2) n.d. = not detected
- (3) MDL = Method Detection Limit

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## Annex 2: Analysis Result of Lead frame (Page 5 of 11)



### Test Report

No. 2103719/EC

Date : Jun 09 2010

Page 5 of 11

Test result:

ID for sample 1 : 4111662S001

Description for sample 1 : Coppery Metal

(3)

#### Halogen

<u>Test Item(s) :</u>	<u>CAS No.</u>	<u>Unit</u>	<u>Test Method</u>	<u>Results</u>	<u>MDL</u>
Fluorine (F)	007782-41-4	mg/kg	With reference to EN 14582: 2007 and performed by IC	n.d.	50
Chlorine (Cl)	007782-50-5	mg/kg	With reference to EN 14582: 2007 and performed by IC	n.d.	50
Bromine (Br)	007726-95-6	mg/kg	With reference to EN 14582: 2007 and performed by IC	n.d.	50
Iodine (I)	007553-56-2	mg/kg	With reference to EN 14582: 2007 and performed by IC	n.d.	50

Note :

- (1) mg/kg = ppm; 0.1wt% = 1000 ppm
- (2) n.d. = not detected
- (3) MDL = Method Detection Limit

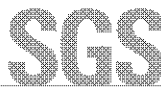
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## Annex 2: Analysis Result of Lead frame (Page 6 of 11)



### Test Report

No. 2103719/EC

Date : Jun 09 2010

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Test result:

ID for sample 1 : 4111662S001

Description for sample 1 : Coppery Metal

(4)

#### PFOS (Perfluorooctane sulfonates)

Test Item(s)	Unit	Test Method (Reference)	1	MDL
Perfluorooctane sulphonates (PFOS)				
PFOS – Acid		With reference to SGS in-house method and performed by HPLC-MS	n.d.	10
PFOS – Metal Salt	mg/kg			
PFOS – Amide				

#### PFOA (Perfluorooctyl Acid)

Test Item(s)	Unit	Test Method (Reference)	1	MDL
Perfluorooctyl Acid (PFOA)	mg/kg	With reference to SGS in-house method and performed by HPLC-MS	n.d.	10

Note :

- (1) mg/kg = ppm
- (2) n.d. = Not Detected (< MDL)
- (3) MDL = Method Detection Limit

Reference information: Entry 53 of the Regulation (EC) No. 552/2009 amending Annex XVII of REACH Regulation (EC) No. 1907/2006 (Formerly Directive 2006/122/EC).

- (1) Shall not be placed on the market, or used, as a substance or in mixtures in concentrations equal to or higher than 0.005% by mass.
- (2) Shall 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 1µg/m<sup>2</sup> of the coated material.

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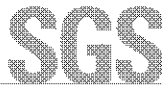
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## Annex 2: Analysis Result of Lead frame (Page 7 of 11)

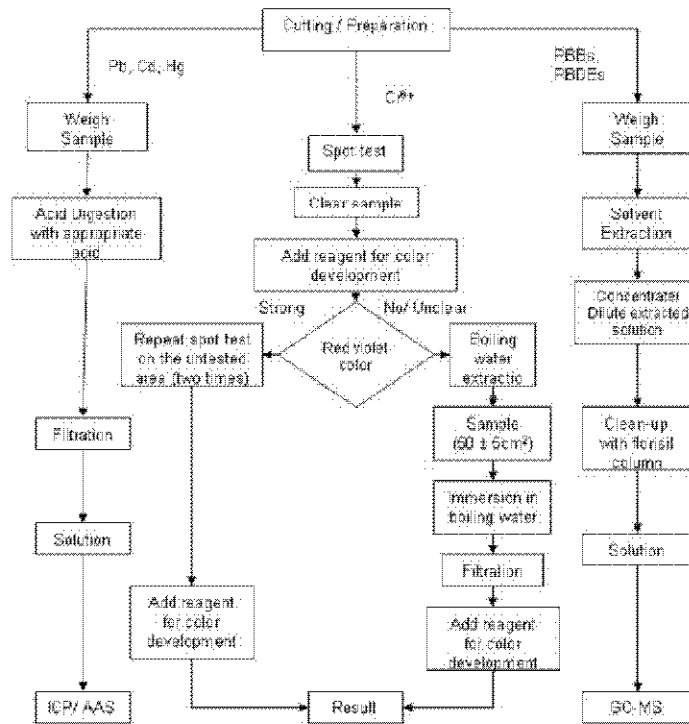


Test Report

No. 2103719/EC

Date : Jun 09 2010

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Operator: Chiu Kan Yuen/ Tang Kuan Fung (Acid digestion)  
Chiu Kan Yuen (Dry Ashing)  
Lam Ka Yung, Allen (Hexavalent Chromium)  
Lau Chung Yan, Eric (PBBs and PBDEs)

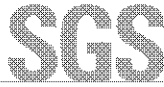
Section Chief: Tsun Hoi Ping, Patrick

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**Annex 2: Analysis Result of Lead frame (Page 8 of 11)****Test Report**

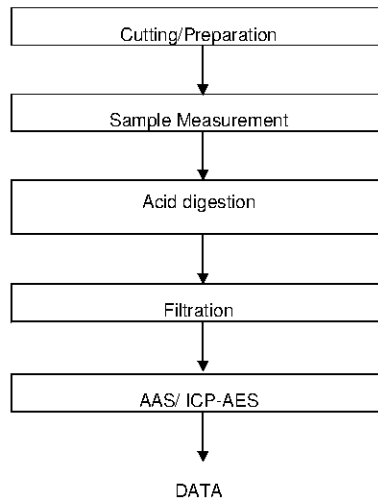
No. 2103719/EC

Date : Jun 09 2010

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**Flowchart of Digestion for Sb Measurement**

Method: SGS In-house Method

Operator : Tang Koon PangSection Chief : Tsui Ho Ping, Patrick

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## Annex 2: Analysis Result of Lead frame (Page 9 of 11)



Test Report

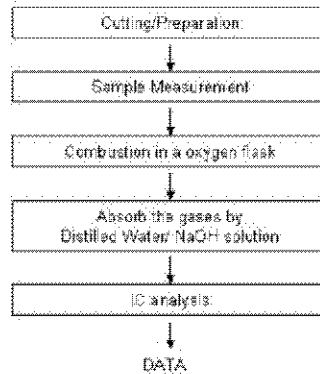
No. 2103719/EC

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### Flowchart for Halogen Free Test:

Method: BS EN14502:2007 method



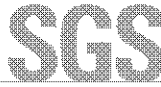
Operator : Tang Yih Sam  
Supervisor : Tsui Hai Ping, Patrick

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**Annex 2: Analysis Result of Lead frame (Page 10 of 11)****Test Report**

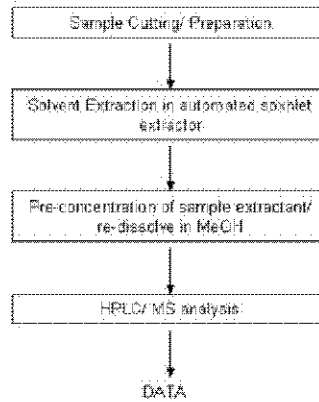
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**Flowchart for PFOS/ PFOA measurement**

Method: In-House method

Operator: Candy Luk  
Chief Supervisor: Yui Ka Lai

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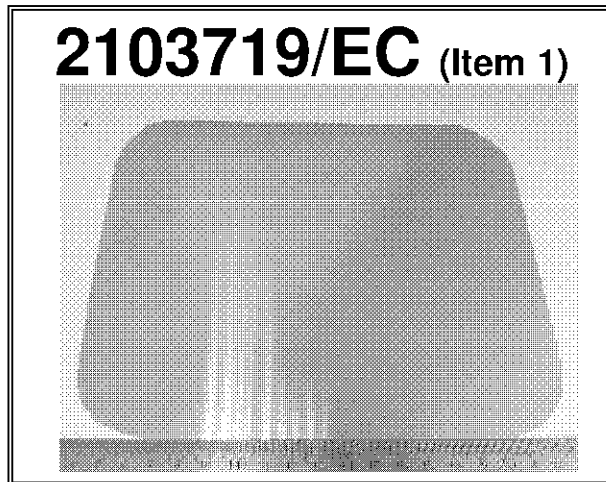
**Annex 2: Analysis Result of Lead frame (Page 11 of 11)****SGS****Test Report**

No. 2103719/EC

Date : Jun 09 2010

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Sample photo :



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Annex 3: Analysis Result of Clip (Page 1 of 5)



TEST REPORT

NUMBER: WUXH00003625

APPLICANT: CONCORD SEMICONDUCTOR(WUXI) CO., LTD.  
DATE: NOV 26, 2010  
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INDUSTRIAL PARK WUXI NATIONAL HIGH-  
TECH DEVELOPMENT ZONE,  
WUXI, JIANGSU, CHINA  
ATTN: ZHANG XIAOPENG

SAMPLE DESCRIPTION:

ONE (1) PIECE OF SUBMITTED SAMPLE SAID TO BE : COPPER CLIP.  
ITEM NAME : CLIP.  
VENDOR : ADVANCED METAL ETCHING INC.  
COMPONENT OR PART NO. : COPPER.  
TEST ITEM : Pb, Cd, Hg, CrVI.

TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

SUMMARY:

<u>TESTED SAMPLE</u>	<u>STANDARD</u>	<u>RESULT</u>
SUBMITTED SAMPLE	WITH REFERENCE TO TEST METHOD OF IEC 62321 EDITION 1.0: 2008 AND MAXIMUM CONCENTRATION LIMITS QUOTED FROM ROHS DIRECTIVES 2002/95/EC AND AMENDMENT 2005/618/EC	PASS

TO BE CONTINUED

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 4567 Fax: +86 510 8820 0428 E-mail: consumergoods.wuxi@intertek.com

**Annex 3: Analysis Result of Clip (Page 2 of 5)**



**TEST REPORT**

NUMBER: WUXH00003625

TESTS CONDUCTED

(A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT
CADMIUM (Cd) CONTENT (mg/kg) / PLATING	ND
LEAD (Pb) CONTENT (mg/kg) / PLATING	ND
MERCURY (Hg) CONTENT (mg/kg) / PLATING	ND
CHROMIUM (VI) (Cr <sup>6+</sup> ) RESULT (BY BOILING WATER EXTRACTION ON METAL) (mg/kg WITH 50cm <sup>2</sup> )	ND

REMARK:

mg/kg = MILLIGRAM PER KILOGRAM = ppm

mg/kg WITH 50cm<sup>2</sup> = MILLIGRAM PER KILOGRAM WITH 50 SQUARE CENTIMETER

ND = NOT DETECTED

(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 <sup>6+</sup> )	0.1% (1000 mg/kg)

THE ABOVE LIMITS WERE QUOTED FROM 2002/95/EC AND AMENDMENT 2005/618/EC FOR HOMOGENEOUS MATERIAL.

\*\*\*\*\*

TO BE CONTINUED

(c) TEST METHOD:

**Annex 3: Analysis Result of Clip (Page 3 of 5)**



**TEST REPORT**

NUMBER: WUXH00003625

TESTS CONDUCTED

<u>TESTING ITEM</u>	<u>TESTING METHOD</u>	<u>REPORTING LIMIT</u>
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 <sup>6+</sup> ) CONTENT (FOR METAL)	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY BOILING WATER EXTRACTION AND DETERMINED BY UV-VIS SPECTROPHOTOMETER	0.02mg/kg WITH 50cm <sup>2</sup> (IN TESTING SOLUTION)

DATE SAMPLE RECEIVED:NOV 23, 2010

TESTING PERIOD:NOV 23, 2010 TO NOV 26, 2010

\*\*\*\*\*

TO BE CONTINUED

**Intertek Testing Services Wuxi Ltd.**

No.8 Fubei Road, Xishan Economic Development Zone,  
Wuxi 214101, Jiangsu, China

Tel: +86 510 8821 4567 Fax: +86 510 8820 0428 E-mail: consumergoods.wuxi@intertek.com



### Annex 3: Analysis Result of Clip (Page 4 of 5)

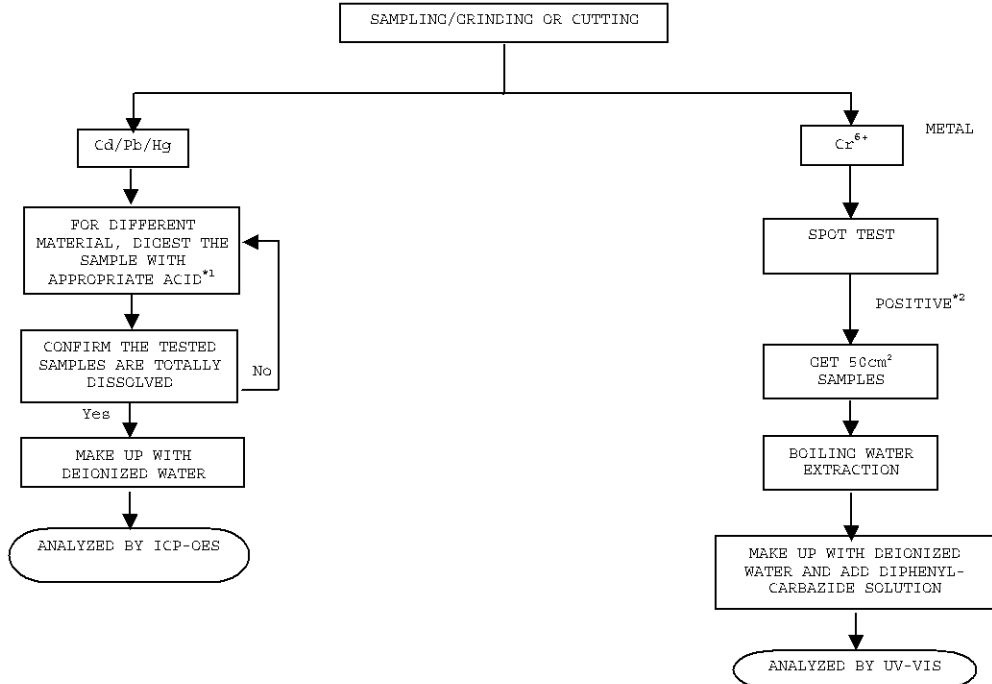


**TEST REPORT**

NUMBER: WUXH00003625

TESTS CONDUCTED

(D) MEASUREMENT FLOWCHART:  
 TEST FOR Cd/Pb/Hg/Cr (VI) CONTENTS  
 REFERENCE STANDARD: IEC 62321 EDITION 1.0: 2008



CHEMIST: INORGANIC (ANN LUO/FRED WANG/ALLY WAN)

REMARKS:

\*1: LIST OF APPROPRIATE ACID:

MATERIAL	ACID ADDED FOR DIGESTION
POLYMERS	HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
METALS	HNO <sub>3</sub> , HCl, HF
ELECTRONICS	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

\*2: IF THE RESULT OF SPOT TEST IS POSITIVE, CHROMIUM VI WOULD BE DETERMINED AS DETECTED.

\*\*\*\*\*  
 TO BE CONTINUED

PHOTO

**Intertek Testing Services Wuxi Ltd.**

No.8 Fubei Road, Xishan Economic Development Zone,  
 Wuxi 214101, Jiangsu, China  
 Tel: +86 510 8821 4567 Fax: +86 510 8820 0428 E-mail: consumergoods.wuxi@intertek.com

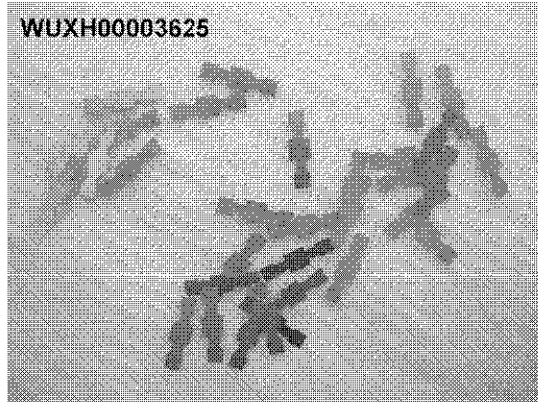
Annex 3: Analysis Result of Clip (Page 5 of 5)



TEST REPORT

NUMBER: WUXH00003625

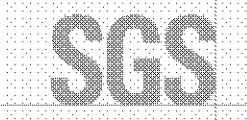
TESTS CONDUCTED



\*\*\*\*\*

END OF REPORT

## Annex 4: Analysis Result of Matte-Tin Plating (page 1 of 6)



### Test Report

No.: GZ0912123513/CHEM

Date: JAN 06, 2010

Page 1 of 6

GAOXIN STANNUM INDUSTRY (HUIZHOU) CO., LTD.  
XIANAN INDUSTRIAL CENTRE, YUANZHOU TOWN, BOLUO, COUNTY, HUIZHOU CITY, CHINA

The following sample(s) was/were submitted and identified on behalf of the applicant as Solder Ball 99.98

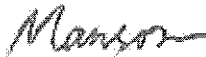
SGS Job No. : SZ12327648  
 SGS Internal Reference No. : 47.24  
 Date of Sample Received : DEC 30, 2009  
 Testing Period : DEC 30, 2009 TO JAN 06, 2010

Test Requested : Selected test (s) as requested by client.

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

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

Signed for and on behalf of  
SGS-CSTC Ltd.



Manson Yang  
Sr. Engineer

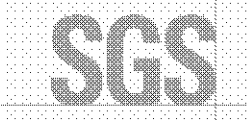
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## Annex 4: Analysis Result of Matte-Tin Plating (page 2 of 6)



### Test Report

No.: GZ0912123513/CHEM

Date: JAN 06, 2010

Page 2 of 6

#### Test Results:

Description for specimen 1 : Silvery metal

#### Elementary Analysis

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Cadmium (Cd)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2
Lead (Pb)	mg/kg	IEC 62321: 2008, ICP-OES	24	2
Mercury (Hg)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2
Hexavalent Chromium (CrVI) by boiling water extraction	-	IEC 62321: 2008, UV-Vis	Negative	◇

#### Note:

1. mg/kg = ppm

2. N.D. = Not Detected (< MDL)

3. MDL = Method Detection Limit

4. ◇ = Spot test:

Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;

(The tested sample should be further verified by boiling water extraction method if the spot test result is negative or cannot be confirmed.)

Boiling water extraction:

Negative = Absence of CrVI coating

Positive = Presence of CrVI coating; the detected concentration in boiling water extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.

Storage conditions and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

5. "-" = Not regulated

#### Flame Retardants

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Sum of PBBs	mg/kg	-	N.D.	-
Monobromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Dibromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Tribromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Tetrabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Pentabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Hexabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Heptabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Octabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Nonabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Decabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Sum of PBDEs	mg/kg	-	N.D.	-
Monobromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Dibromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Tribromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Tetrabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5

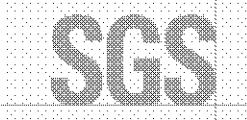
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## Annex 4: Analysis Result of Matte-Tin Plating (page 3 of 6)



### Test Report

No.: GZ0912123513/CHEM

Date: JAN 06, 2010

Page 3 of 6

Pentabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Hexabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Heptabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Octabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Nonabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Decabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5

Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. "-" = Not regulated

Remark: Results & photo(s) of this report refer to test report GZ0912123511/CHEM.

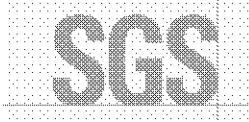
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## Annex 4: Analysis Result of Matte-Tin Plating (page 4 of 6)



### Test Report

No.: GZ0912123513/CHEM

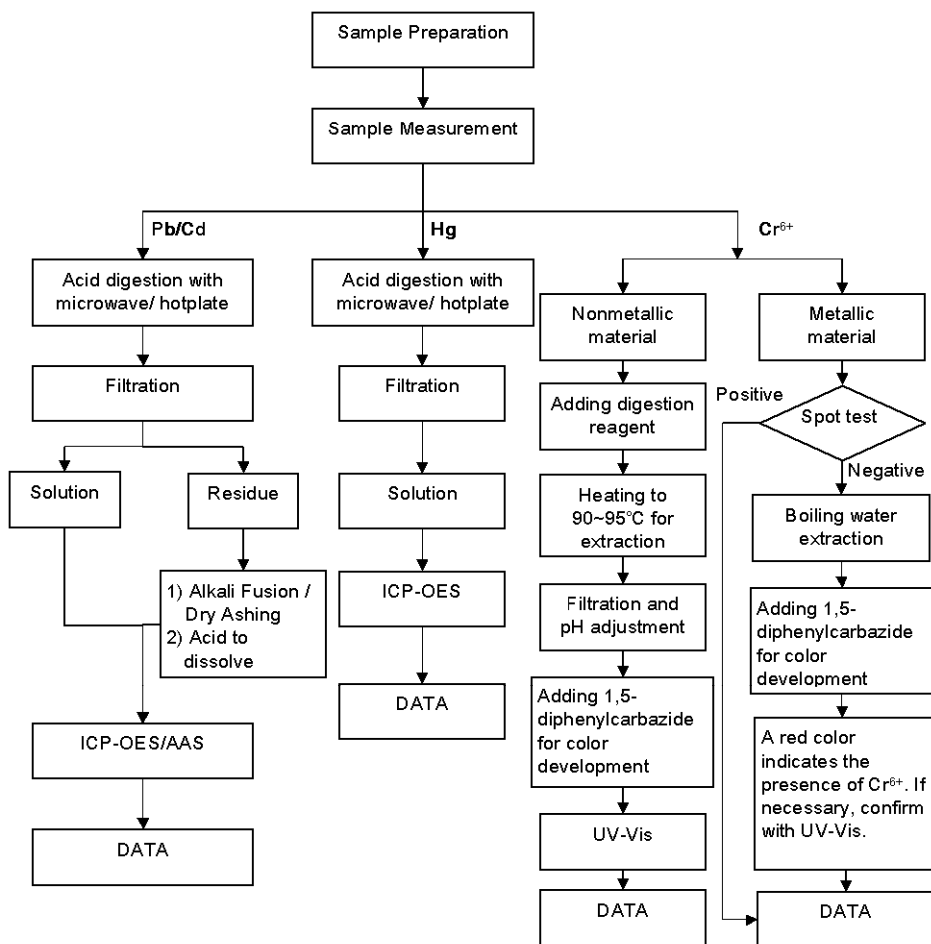
Date: JAN 06, 2010

Page 4 of 6

### ATTACHMENTS

#### Testing Flow Chart

- 1) Name of the person who made measurement: Bella Wang
- 2) Name of the person in charge of measurement: Adams Yu



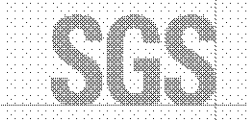
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## Annex 4: Analysis Result of Matte-Tin Plating (page 5 of 6)



Test Report

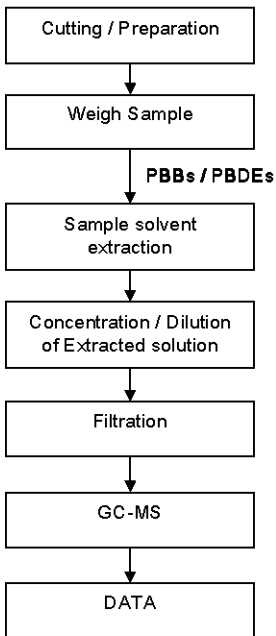
No.: GZ0912123513/CHEM

Date: JAN 06, 2010

Page 5 of 6

### Testing Flow Chart

- 1) Name of the person who made measurement: Tina Zhao
- 2) Name of the person in charge of measurement: Ryan Yang



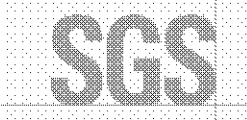
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**Annex 4: Analysis Result of Matte-Tin Plating (page 6 of 6)**



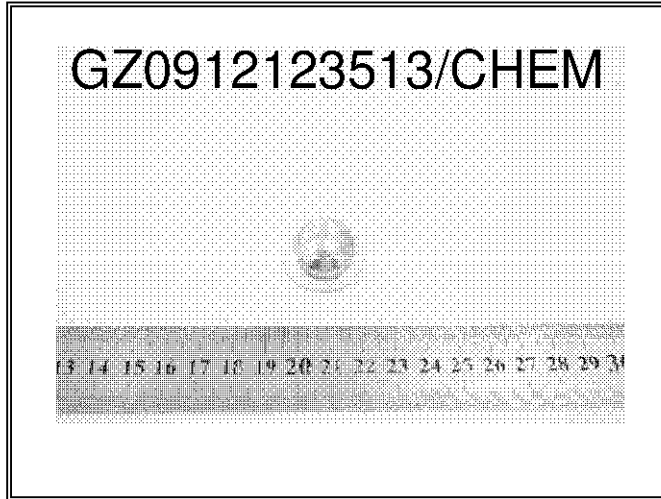
**Test Report**

No.: GZ0912123513/CHEM

Date: JAN 06, 2010

Page 6 of 6

Sample photo :



SGS authenticate the photo on original report only

\*\*\* End of Report \*\*\*

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**Annex 5: Analysis Result of Ni-plated Wafer (Page 1 of 7)**



**TEST REPORT**

NUMBER: WUXH00002719

APPLICANT: CONCORD SEMICONDUCTOR(WUXI) CO., DATE: AUG 06, 2010  
 LTD.  
 EAST 1#, ZHENFA 6 ROAD, SHUO FANG  
 INDUSTRIAL PARK WUXI NATIONAL HIGH-  
 TECH DEVELOPMENT ZONE,  
 WUXI, JIANGSU, CHINA  
 ATTN: ZHANG XIAOPENG

**SAMPLE DESCRIPTION:**

ONE (1) PIECE OF SUBMITTED SAMPLE SAID TO BE : **SILVER GREY METAL.**  
 ITEM NAME : SILICON WAFER WITH NICKEL PLATING.  
 VENDOR : CONCORD.  
 COMPONENT OR PART NO. : SILICON+NICKEL.  
 TEST ITEM : Pb, Cd, Hg, CrVI, PBB, PBDE, F, Cl, Br, I.

\*\*\*\*\*

**TESTS CONDUCTED:**

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)  
 \*\*\*\*\*

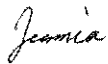
**SUMMARY:**

<u>TESTED SAMPLE</u>	<u>STANDARD</u>	<u>RESULT</u>
SUBMITTED SAMPLE	WITH REFERENCE TO TEST METHOD OF IEC 62321 EDITION 1.0: 2008 AND MAXIMUM CONCENTRATION LIMITS QUOTED FROM ROHS DIRECTIVES 2002/95/EC AND AMENDMENT 2005/618/EC	PASS

\*\*\*\*\*

TO BE CONTINUED

PREPARED AND CHECKED BY:  
 FOR INTERTEK TESTING SERVICES WUXI LTD.



JESSICA LU  
 GENERAL MANAGER

PAGE 1 OF 7

**Intertek Testing Services Wuxi Ltd.**  
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 Tel: +86 510 8821 4567 Fax: +86 510 8820 0428 E-mail: consumergoods.wuxi@intertek.com

## Annex 5: Analysis Result of Ni-plated Wafer (Page 2 of 7)



**TEST REPORT**

NUMBER: WUXH00002719

TESTS CONDUCTED

(A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT
CADMIUM (Cd) CONTENT (mg/kg)	ND
LEAD (Pb) CONTENT (mg/kg)	ND
MERCURY (Hg) CONTENT (mg/kg)	ND
CHROMIUM (VI) (Cr <sup>6+</sup> ) RESULT (BY BOILING WATER EXTRACTION ON METAL) (mg/kg WITH 50cm <sup>2</sup> )	ND
POLYBROMINATED BIPHENYLS (PBBs) (mg/kg)	
MONOBROMO BIPHENYLS (MonoBB)	ND
DIBROMO BIPHENYLS (DiBB)	ND
TRIBROMO BIPHENYLS (TriBB)	ND
TETRABROMO BIPHENYLS (TetraBB)	ND
PENTABROMO BIPHENYLS (PentaBB)	ND
HEXABROMO BIPHENYLS (HexaBB)	ND
HEPTABROMO BIPHENYLS (HeptaBB)	ND
OCTABROMO BIPHENYLS (OctaBB)	ND
NONABROMO BIPHENYLS (NonaBB)	ND
DECABROMO BIPHENYL (DecaBB)	ND
POLYBROMINATED DIPHENYL ETHERS (PBDEs) (mg/kg)	
MONOBROMO DIPHENYL ETHERS (MonoBDE)	ND
DIBROMO DIPHENYL ETHERS (DiBDE)	ND
TRIBROMO DIPHENYL ETHERS (TriBDE)	ND
TETRABROMO DIPHENYL ETHERS (TetraBDE)	ND
PENTABROMO DIPHENYL ETHERS (PentaBDE)	ND
HEXABROMO DIPHENYL ETHERS (HexaBDE)	ND
HEPTABROMO DIPHENYL ETHERS (HeptaBDE)	ND
OCTABROMO DIPHENYL ETHERS (OctaBDE)	ND
NONABROMO DIPHENYL ETHERS (NonaBDE)	ND
DECABROMO DIPHENYL ETHER (DecaBDE)	ND

REMARK:

mg/kg = MILLIGRAM PER KILOGRAM BASED ON DRY WEIGHT= ppm

ND = NOT DETECTED

mg/kg WITH 50cm<sup>2</sup> = MILLIGRAM PER KILOGRAM WITH 50 SQUARE CENTIMETER

\*\*\*\*\*

TO BE CONTINUED

PAGE 2 OF 7

**Intertek Testing Services Wuxi Ltd.**

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Wuxi 214101, Jiangsu, China

Tel: +86 510 8821 4567 Fax: +86 510 8820 0428 E-mail: consumergoods.wuxi@intertek.com

## Annex 5: Analysis Result of Ni-plated Wafer (Page 3 of 7)



**TEST REPORT**

NUMBER: WUXH00002719

TESTS CONDUCTED

(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 <sup>6+</sup> )	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:

<u>TESTING ITEM</u>	<u>TESTING METHOD</u>	<u>REPORTING LIMIT</u>
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 <sup>6+</sup> ) CONTENT (FOR METAL)	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY BOILING WATER EXTRACTION AND DETERMINED BY UV-VIS SPECTROPHOTOMETER	0.02mg/kg WITH 50cm <sup>2</sup> (IN TESTING SOLUTION)
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 02, 2010  
 TESTING PERIOD:AUG 02, 2010 TO AUG 05, 2010

\*\*\*\*\*  
 TO BE CONTINUED

## Annex 5: Analysis Result of Ni-plated Wafer (Page 4 of 7)

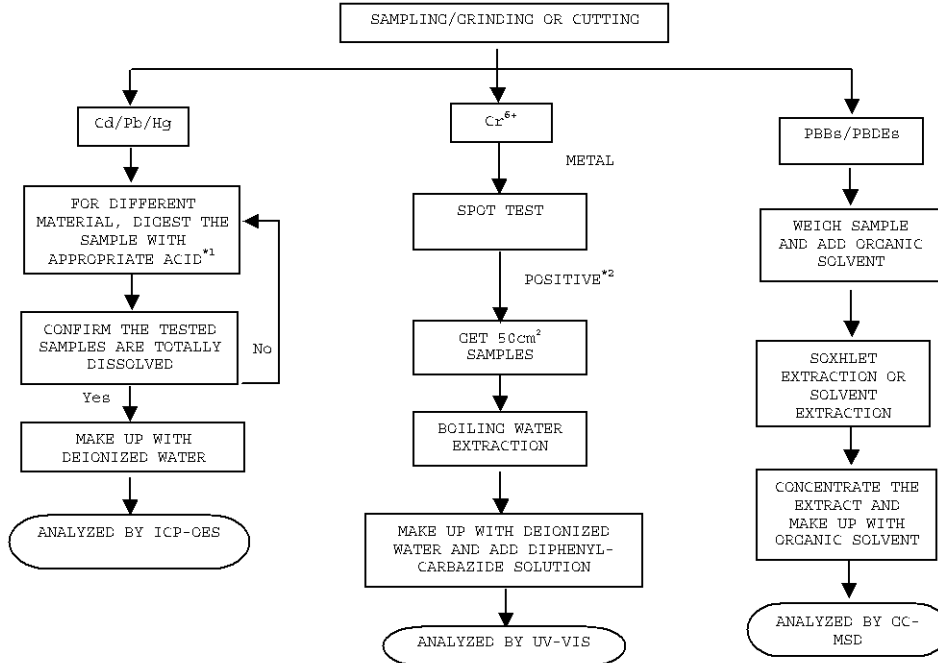


**TEST REPORT**

NUMBER: WUXH00002719

TESTS CONDUCTED

(D) MEASUREMENT FLOWCHART:  
 TEST FOR Cd/Pb/Hg/Cr (VI)/PBBs/PBDEs CONTENTS  
 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 <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
METALS	HNO <sub>3</sub> , HCl, HF
ELECTRONICS	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

\*2: IF THE RESULT OF SPOT TEST IS POSITIVE, CHROMIUM VI WOULD BE DETERMINED AS DETECTED.

\*\*\*\*\*

TO BE CONTINUED

**Annex 5: Analysis Result of Ni-plated Wafer (Page 5 of 7)**

TEST REPORT

NUMBER: WUXH00002719

## TESTS CONDUCTED

## ( I ) TEST RESULT SUMMARY :

## HALOGEN CONTENT :

<u>TESTING ITEM</u>	<u>RESULT (ppm)</u>
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 RECEIVE: AUG 02, 2010

TEST PERIOD: AUG 02, 2010 TO AUG 05, 2010

## ( II ) TEST METHOD :

<u>TESTING ITEM</u>	<u>TESTING METHOD</u>	<u>REPORTING LIMIT</u>
HALOGEN (F, Cl, Br, I) CONTENT	WITH REFERENCE TO IEC 61189-2:2006 BY COMBUSTION FLASK AND DETERMINED BY ION CHROMATOGRAPHY	50 ppm

REMARKS : REPORTING LIMIT = QUANTITATION LIMIT OF ANALYTE IN SAMPLE

\*\*\*\*\*

TO BE CONTINUED

PAGE 5 OF 7

**Intertek Testing Services Wuxi Ltd.**

 No 8 Fubei Road, Xishan Economic Development Zone,  
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**Annex 5: Analysis Result of Ni-plated Wafer (Page 6 of 7)**



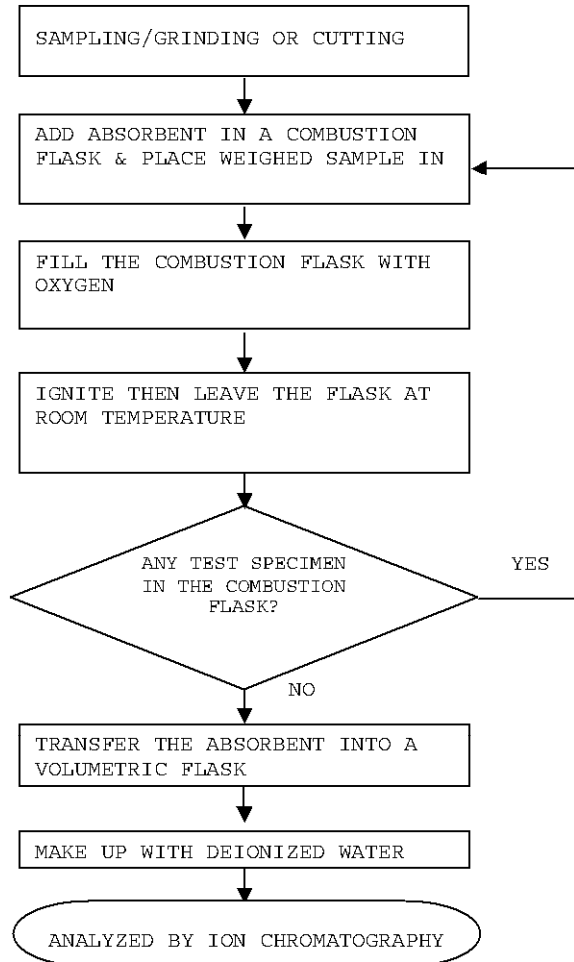
**TEST REPORT**

NUMBER: WUXH00002719

TESTS CONDUCTED

(III) MEASUREMENT FLOWCHART:

TEST FOR HALOGEN CONTENT  
REFERENCE METHOD: IEC 61189-2 TEST 2C12



CHEMIST: FRED WANG/ ALLY WAN

\*\*\*\*\*

TO BE CONTINUED

Annex 5: Analysis Result of Ni-plated Wafer (Page 7 of 7)



TEST REPORT

NUMBER: WUXH00002719

TESTS CONDUCTED

PHOTO



\*\*\*\*\*

END OF REPORT



Annex 6: Analysis Result of Passivation Glass (Page 1 of 7)



TEST REPORT

NUMBER: WUXH00002721

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 06, 2010

SAMPLE DESCRIPTION:

ONE (1) PIECE OF SUBMITTED SAMPLE SAID TO BE :WHITE POWDER.  
ITEM NAME : WAFER PASSIVATION.  
VENDOR : PROPRIETY.  
COMPONENT OR PART NO. : PROPRIETY.  
TEST ITEM : Pb, Cd, Hg, CrVI, PBB, PBDE, F, Cl, Br, I.

\*\*\*\*\*

TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)  
\*\*\*\*\*

TO BE CONTINUED

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 Fubel Road, Xishan Economic Development Zone,  
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## Annex 6: Analysis Result of Passivation Glass (Page 2 of 7)



**TEST REPORT**

NUMBER: WUXH00002721

TESTS CONDUCTED

(A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT
CADMIUM (Cd) CONTENT (mg/kg)	ND
LEAD (Pb) CONTENT (mg/kg)	207400
MERCURY (Hg) CONTENT (mg/kg)	ND
CHROMIUM (VI) (Cr <sup>6+</sup> ) CONTENT (mg/kg) (FOR NON-METAL)	ND
POLYBROMINATED BIPHENYLS (PBBs) (mg/kg)	
MONOBROMO BIPHENYLS (MonoBB)	ND
DIBROMO BIPHENYLS (DiBB)	ND
TRIBROMO BIPHENYLS (TriBB)	ND
TETRABROMO BIPHENYLS (TetraBB)	ND
PENTABROMO BIPHENYLS (PentaBB)	ND
HEXABROMO BIPHENYLS (HexaBB)	ND
HEPTABROMO BIPHENYLS (HeptaBB)	ND
OCTABROMO BIPHENYLS (OctaBB)	ND
NONABROMO BIPHENYLS (NonaBB)	ND
DECABROMO BIPHENYL (DecaBB)	ND
POLYBROMINATED DIPHENYL ETHERS (PBDEs) (mg/kg)	
MONOBROMO DIPHENYL ETHERS (MonoBDE)	ND
DIBROMO DIPHENYL ETHERS (DiBDE)	ND
TRIBROMO DIPHENYL ETHERS (TriBDE)	ND
TETRABROMO DIPHENYL ETHERS (TetraBDE)	ND
PENTABROMO DIPHENYL ETHERS (PentaBDE)	ND
HEXABROMO DIPHENYL ETHERS (HexaBDE)	ND
HEPTABROMO DIPHENYL ETHERS (HeptaBDE)	ND
OCTABROMO DIPHENYL ETHERS (OctaBDE)	ND
NONABROMO DIPHENYL ETHERS (NonaBDE)	ND
DECABROMO DIPHENYL ETHER (DecaBDE)	ND

REMARK:

mg/kg = MILLIGRAM PER KILOGRAM BASED ON DRY WEIGHT= ppm

ND = NOT DETECTED

# = THE RESULT IS FOR REFERENCE ONLY

\*\*\*\*\*

TO BE CONTINUED

## Annex 6: Analysis Result of Passivation Glass (Page 3 of 7)



**TEST REPORT**

NUMBER: WUXH00002721

TESTS CONDUCTED

(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 <sup>6+</sup> )	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:

<u>TESTING ITEM</u>	<u>TESTING METHOD</u>	<u>REPORTING LIMIT</u>
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 <sup>6+</sup> ) 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 02, 2010  
 TESTING PERIOD:AUG 02, 2010 TO AUG 05, 2010

\*\*\*\*\*  
 TO BE CONTINUED

## Annex 6: Analysis Result of Passivation Glass (Page 4 of 7)

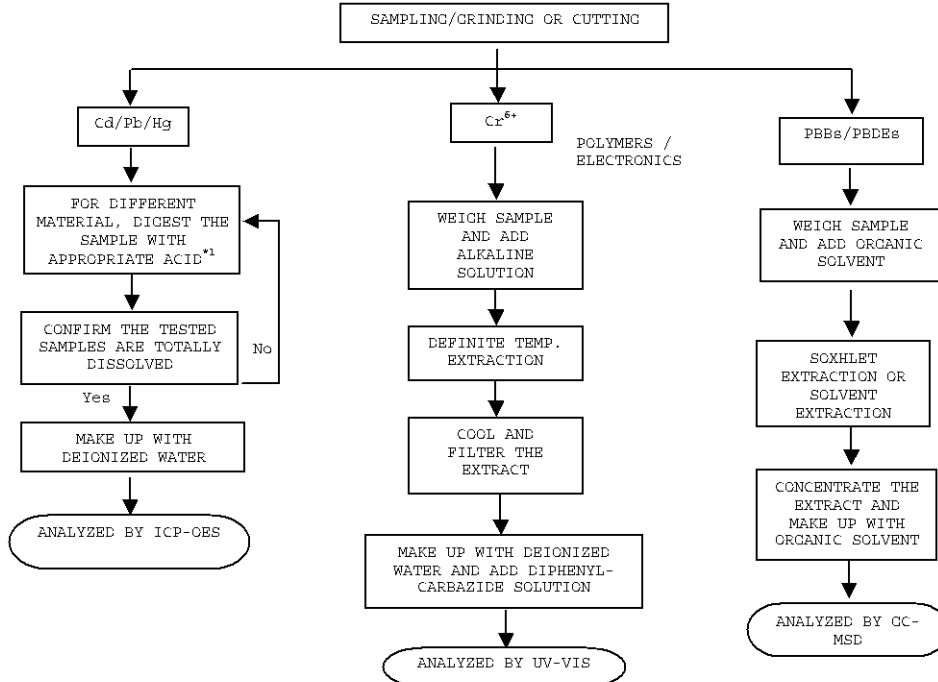
**Intertek**

**TEST REPORT**

NUMBER: WUXH00002721

TESTS CONDUCTED

(D) MEASUREMENT FLOWCHART:  
 TEST FOR Cd/Pb/Hg/Cr (VI)/PBBs/PBDEs CONTENTS  
 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 <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
METALS	HNO <sub>3</sub> , HCl, HF
ELECTRONICS	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

\*2: IF THE RESULT OF SPOT TEST IS POSITIVE, CHROMIUM VI WOULD BE DETERMINED AS DETECTED.

\*\*\*\*\*

TO BE CONTINUED

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



**TEST REPORT**

NUMBER: WUXH00002721

TESTS CONDUCTED

( I ) TEST RESULT SUMMARY :

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 RECEIVE: AUG 02, 2010

TEST PERIOD: AUG 02, 2010 TO AUG 05, 2010

( II ) TEST METHOD :

TESTING ITEM	TESTING METHOD	REPORTING LIMIT
HALOGEN (F, Cl, Br, I) CONTENT	WITH REFERENCE TO IEC 61189-2:2006 BY COMBUSTION FLASK AND DETERMINED BY ION CHROMATOGRAPHY	50 ppm

REMARKS : REPORTING LIMIT = QUANTITATION LIMIT OF ANALYTE IN SAMPLE

\*\*\*\*\*

TO BE CONTINUED

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



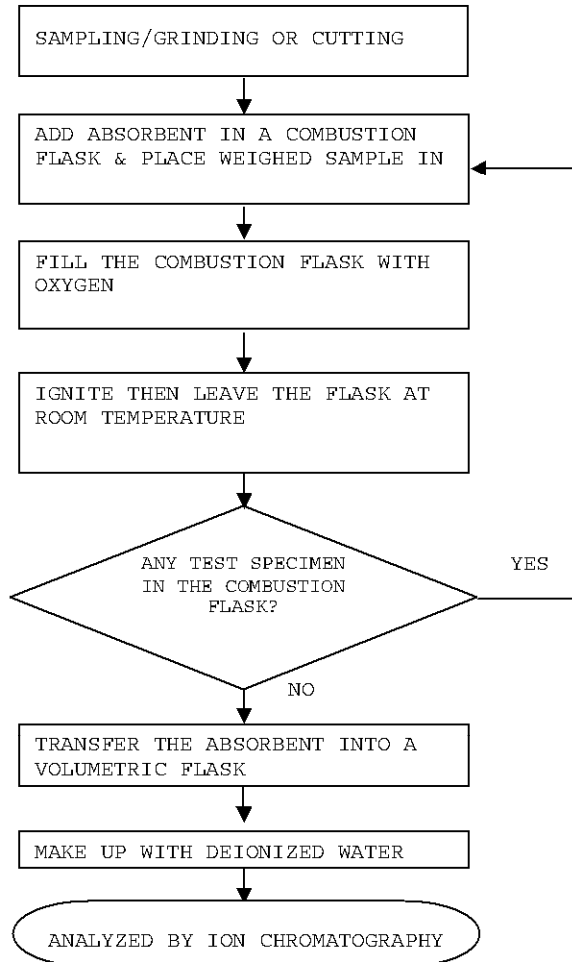
**TEST REPORT**

NUMBER: WUXH00002721

TESTS CONDUCTED

(III) MEASUREMENT FLOWCHART:

TEST FOR HALOGEN CONTENT  
REFERENCE METHOD: IEC 61189-2 TEST 2C12



CHEMIST: FRED WANG/ ALLY WAN

\*\*\*\*\*

TO BE CONTINUED

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

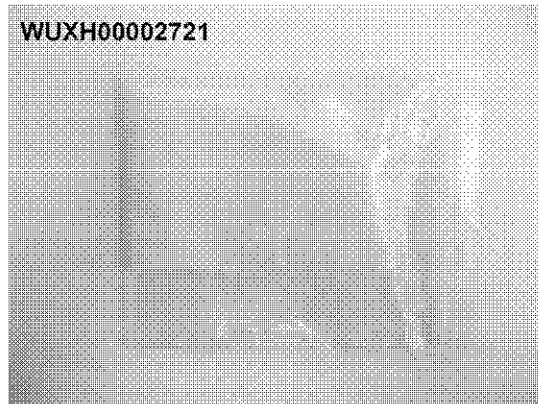


TEST REPORT

NUMBER: WUXH00002721

TESTS CONDUCTED

PHOTO



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END OF REPORT

PAGE 7 OF 7

**Intertek Testing Services Wuxi Ltd.**  
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**Annex 7: Analysis Result of Die Bonding Solder (Page 1 of 7)****TEST REPORT**

NUMBER: WUXH00002745

APPLICANT: CONCORD SEMICONDUCTOR(WUXI) CO.,      DATE: AUG 06, 2010  
LTD.  
EAST 1#, ZHENFA 6 ROAD, SHUO FANG  
INDUSTRIAL PARK WUXI NATIONAL HIGH-  
TECH DEVELOPMENT ZONE,  
WUXI, JIANGSU, CHINA  
ATTN: ZHANG XIAOPENG

## SAMPLE DESCRIPTION:

ONE (1) PIECE OF SUBMITTED SAMPLE SAID TO BE : **GREY PASTE**.

ITEM NAME                                 : SOLDER PASTER.

VENDOR   : HERAEUS MATERIALS TECHNOLOGY SHANGHAI LTD.

COMPONENT OR PART NO.                 : F367SN10-90PB.

TEST ITEM                                    : Pb, Cd, Hg, CrVI, PBB PBDE, F, Cl, Br, I.

## TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

TO BE CONTINUED

PREPARED AND CHECKED BY:  
FOR INTERTEK TESTING SERVICES WUXI LTD.



JESSICA LU  
GENERAL MANAGER

**Intertek Testing Services Wuxi Ltd.**

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PAGE 1 OF 7

## Annex 7: Analysis Result of Die Bonding Solder (Page 2 of 7)



**TEST REPORT**

NUMBER: WUXH00002745

TESTS CONDUCTED

(A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT
CADMIUM (Cd) CONTENT (mg/kg)	ND
LEAD (Pb) CONTENT (mg/kg)	932600
MERCURY (Hg) CONTENT (mg/kg)	ND
CHROMIUM (VI) (Cr <sup>6+</sup> ) CONTENT (mg/kg) (FOR NON-METAL)	ND
POLYBROMINATED BIPHENYLS (PBBs) (mg/kg)	
MONOBROMO BIPHENYLS (MonoBB)	ND
DIBROMO BIPHENYLS (DiBB)	ND
TRIBROMO BIPHENYLS (TriBB)	ND
TETRABROMO BIPHENYLS (TetraBB)	ND
PENTABROMO BIPHENYLS (PentaBB)	ND
HEXABROMO BIPHENYLS (HexaBB)	ND
HEPTABROMO BIPHENYLS (HeptaBB)	ND
OCTABROMO BIPHENYLS (OctaBB)	ND
NONABROMO BIPHENYLS (NonaBB)	ND
DECABROMO BIPHENYL (DecaBB)	ND
POLYBROMINATED DIPHENYL ETHERS (PBDEs) (mg/kg)	
MONOBROMO DIPHENYL ETHERS (MonoBDE)	ND
DIBROMO DIPHENYL ETHERS (DiBDE)	ND
TRIBROMO DIPHENYL ETHERS (TriBDE)	ND
TETRABROMO DIPHENYL ETHERS (TetraBDE)	ND
PENTABROMO DIPHENYL ETHERS (PentaBDE)	ND
HEXABROMO DIPHENYL ETHERS (HexaBDE)	ND
HEPTABROMO DIPHENYL ETHERS (HeptaBDE)	ND
OCTABROMO DIPHENYL ETHERS (OctaBDE)	ND
NONABROMO DIPHENYL ETHERS (NonaBDE)	ND
DECABROMO DIPHENYL ETHER (DecaBDE)	ND

REMARK:

mg/kg = MILLIGRAM PER KILOGRAM BASED ON DRY WEIGHT= ppm

ND = NOT DETECTED

# = THE RESULT IS FOR REFERENCE ONLY

\*\*\*\*\*

TO BE CONTINUED



**Annex 7: Analysis Result of Die Bonding Solder (Page 3 of 7)**



**TEST REPORT**

NUMBER: WUXH00002746

TESTS CONDUCTED

(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 <sup>6+</sup> )	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 <sup>6+</sup> ) 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 02, 2010  
 TESTING PERIOD:AUG 02, 2010 TO AUG 05, 2010

\*\*\*\*\*  
 TO BE CONTINUED

## Annex 7: Analysis Result of Die Bonding Solder (Page 4 of 7)

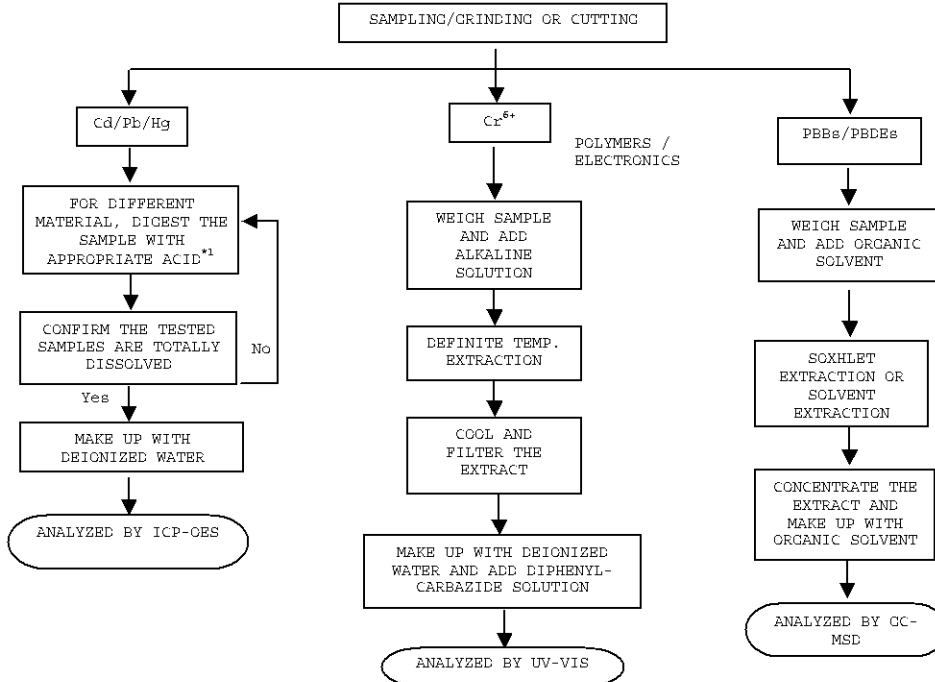
**Intertek**

**TEST REPORT**

NUMBER: WUXH00002745

TESTS CONDUCTED

(D) MEASUREMENT FLOWCHART:  
 TEST FOR Cd/Pb/Hg/Cr (VI)/PBBs/PBDEs CONTENTS  
 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 <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
METALS	HNO <sub>3</sub> , HCl, HF
ELECTRONICS	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

\*2: IF THE RESULT OF SPOT TEST IS POSITIVE, CHROMIUM VI WOULD BE DETERMINED AS DETECTED.

\*\*\*\*\*

TO BE CONTINUED

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**Annex 7: Analysis Result of Die Bonding Solder (Page 5 of 7)**



**TEST REPORT**

NUMBER: WUXH00002745

TESTS CONDUCTED

( I ) TEST RESULT SUMMARY :

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 RECEIVE: AUG 02, 2010

TEST PERIOD: AUG 02, 2010 TO AUG 05, 2010

( II ) TEST METHOD :

TESTING ITEM	TESTING METHOD	REPORTING LIMIT
HALOGEN (F, Cl, Br, I) CONTENT	WITH REFERENCE TO IEC 61189-2:2006 BY COMBUSTION FLASK AND DETERMINED BY ION CHROMATOGRAPHY	50 ppm

REMARKS : REPORTING LIMIT = QUANTITATION LIMIT OF ANALYTE IN SAMPLE

\*\*\*\*\*  
TO BE CONTINUED

**Annex 7: Analysis Result of Die Bonding Solder (Page 6 of 7)**



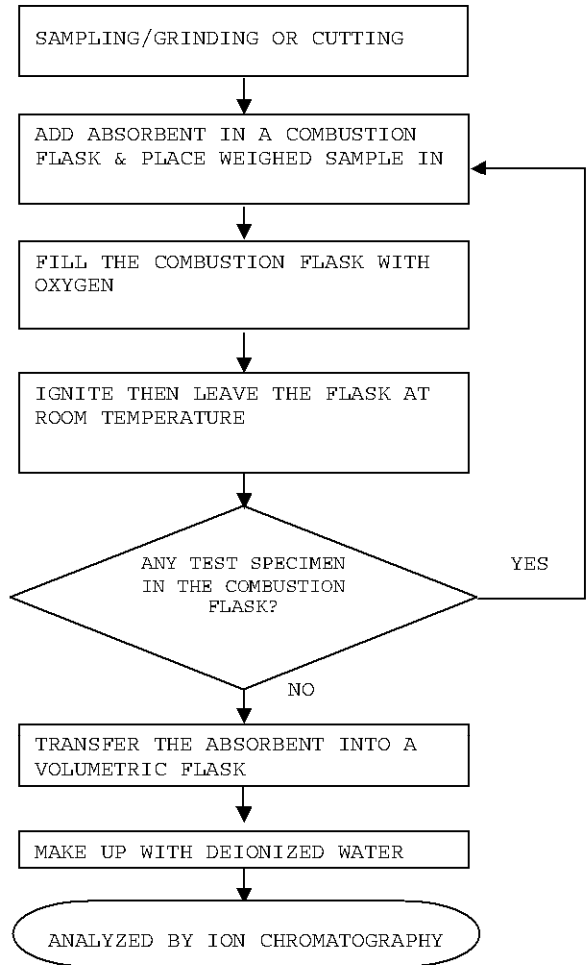
**TEST REPORT**

NUMBER: WUXH00002746

TESTS CONDUCTED

(III) MEASUREMENT FLOWCHART:

TEST FOR HALOGEN CONTENT  
REFERENCE METHOD: IEC 61189-2 TEST 2C12



CHEMIST: FRED WANG/ ALLY WAN

\*\*\*\*\*

TO BE CONTINUED

Annex 7: Analysis Result of Die Bonding Solder (Page 7 of 7)



TEST REPORT

NUMBER: WUXH00002746

TESTS CONDUCTED

PHOTO



\*\*\*\*\*

END OF REPORT

PAGE 7 OF 7

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## Annex 8: Applicable RoHS exemptions

13.2.2003 EN Official Journal of the European Union L 37/19

**DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**  
**of 27 January 2003**  
**on the restriction of the use of certain hazardous substances in electrical and electronic equipment**

13.2.2003 EN Official Journal of

*Article 4*

**Prevention**

1. Member States shall ensure that, from 1 July 2006, new electrical and electronic equipment put on the market does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE). National measures restricting or prohibiting the use of these substances in electrical and electronic equipment which were adopted in line with Community legislation before the adoption of this Directive may be maintained until 1 July 2006.

to be protected and an overall strategy that in particular restricts the use of cadmium and stimulates research into substitutes should therefore be implemented. The Reso-

13.2.2003 EN Official Journal of the European Union L 37/23

2. Paragraph 1 shall not apply to the applications listed in the Annex.

ANNEX

**Applications of lead, mercury, cadmium and hexavalent chromium, which are exempted from the requirements of Article 4(1)**

1. Mercury in compact fluorescent lamps not exceeding 5 mg per lamp.
2. Mercury in straight fluorescent lamps for general purposes not exceeding:
 

— halophosphate	10 mg
— triphosphate with normal lifetime	5 mg
— triphosphate with long lifetime	8 mg.
3. Mercury in straight fluorescent lamps for special purposes.
4. Mercury in other lamps not specifically mentioned in this Annex.
5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.
6. Lead as an alloying element in steel containing up to 0,35 % lead by weight, aluminium containing up to 0,4 % lead by weight and as a copper alloy containing up to 4 % lead by weight.
7. — Lead in high melting temperature type solders (i.e. tin-lead solder alloys containing more than 85 % lead),
  - lead in solders for servers, storage and storage array systems (exemption granted until 2010),
  - lead in solders for network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunication,
  - lead in electronic ceramic parts (e.g. piezoelectronic devices).
8. Cadmium plating except for applications banned under Directive 91/338/EEC (1) amending Directive 76/769/EEC (2) relating to restrictions on the marketing and use of certain dangerous substances and preparations.