

## Certificate of non-use of The Controlled Substances

Company name            Littelfuse, Inc.

Product Covered        SIDACTor<sup>®</sup> Modified TO-220 Package (A-PAK),

Issue Date                September 10, 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/package materials, and for additives and the like in the manufacturing processes.

It is also certified by Littelfuse, Inc., that the products listed in this report do not contain Halogens and their compounds judged per widely accepted industrial guidelines.

In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/package materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by

\_\_\_\_\_  
< K.Yoshimoto, Senior Product Engineer, Littelfuse, Inc.>

(1) Parts, sub-materials and unit parts

This document covers modified TO-220 (A-PAK) RoHS-Compliant products series supplied by Littelfuse, Inc. Please see page 2 for the complete list of part number covered by this report.

< Homogeneous Materials used >

Please see figure and table 1 on page 5 of this document.

(2) The analytical data on all measurable substances

Please see annex 1 through 10, attached to this document

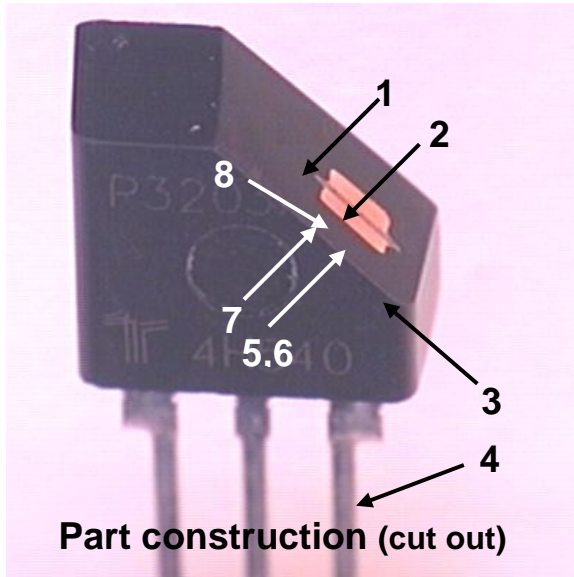
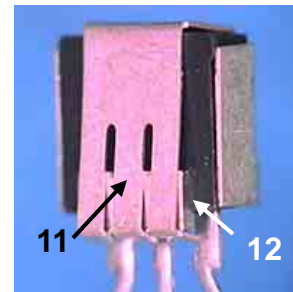
Remarks :

**Pb (lead) contained in die bonding solder (item 7 on page 3) and passivation glass (item 6) to be categorized as exempt in RoHS Annex III 7(a) and 7(c)-I.**

**Please refer to Annex 12 of this report for the extract of the applicable exemptions of RoHS (2011/65/EU)**

### Littelfuse Part Number covered by this report

| Standard (Catalog) Part Number |            |            | SPECIAL DEVICE P/N   |
|--------------------------------|------------|------------|--|
| P2000AA61L                     | P1402ACL   | P1553ACL   | Any Special P/N which has base standard P/N listed in this table.  |
| P2200AA61L                     | P1602ACL   | P1803ACL   |  |
| P2400AA61L                     | P2202ACL   | P2103ACL   |  |
| P2500AA61L                     | P2702ACL   | P2353ACL   | CR2703AA   |
| P3000AA61L                     | P3002ACL   | P2703ACL   | <b>Optional Suffix</b>   |
| P3300AA61L                     | P3602ACL   | P3203ACL   |  |
|                                | P4202ACL   | P3403ACL   |  |
| P0302AAL                       | P4802ACL   | P5103ACL   | Any P/N in this list, including special device P/N may be followed by "RP" or "TP" which denote packing options, or by "60", "61" or "69" which denote the lead-forming options. |
| P0302AAMCL                     | P6002ACL   | P1553ACMCL |  |
| P0602AAL                       |            |            |  |
| P0602AAMCL                     | P0302ACMCL | P1803ACMCL |  |
| P1402AAL                       | P0602ACMCL | P2103ACMCL |  |
| P1602AAL                       | P1402ACMCL | P2353ACMCL |  |
| P2202AAL                       | P1602ACMCL | P2703ACMCL |  |
| P2702AAL                       | P2202ACMCL | P3203ACMCL |  |
| P3002AAL                       | P2702ACMCL | P3403ACMCL |  |
| P3602AAL                       | P3002ACMCL | P5103ACMCL |  |
| P4202AAL                       | P3602ACMCL |            | <b>FS1 SERIES</b>  |
| P4802AAL                       | P4202ACMCL | P1400ADL61 | P2703AALFS1  |
| P6002AAL                       | P4802ACMCL | P1800ADL61 | P2703ACMCLFS1  |
|                                | P6002ACMCL | P3100ADL61 |  |
| P0302ABL                       |            | P6002ADL   | P3203ACFS1   |
| P0302ABMCL                     | P1553AAL   |            | P6002ACFS1   |
| P0602ABL                       | P1803AAL   |            |  |
| P0602ABMCL                     | P2103AAL   |            |  |
| P1402ABL                       | P2353AAL   |            |  |
| P1602ABL                       | P2703AAL   |            |  |
| P2202ABL                       | P3203AAL   |            |  |
| P2702ABL                       | P3403AAL   |            |  |
| P3002ABL                       |            |            |  |
| P3602ABL                       | P1553ABL   |            |  |
| P4202ABL                       | P1803ABL   |            |  |
| P4802ABL                       | P2103ABL   |            |  |
| P6002ABL                       | P2353ABL   |            |  |
|                                | P2703ABL   |            |  |
| P0302ACL                       | P3203ABL   |            |  |
| P0602ACL                       | P3403ABL   |            |  |
|                                | P5103ABL   |            |  |


**Part construction (cut out)**
**Material Used (where used)**

**A-PAK Fail Safe (FS1 Series)**
**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 2. Clip uses same copper material as lead frame   |
| 4  | Lead finish              | tin alloy        | 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 7.  |
| 8  | Die bonding solder       | solder           | metal   | annex 6. Pb in this solder is exempted by RoHS Annex 5. |
|    |                          |                  |         |   |
|    |                          |                  |         |   |
| 11 | Fail Safe Clip           | copper alloy     | metal   | annex 9. Applicable to fail safe FS1 series only        |
| 12 | Fail Safe Solder Preform | solder           | metal   | annex 10. Applicable to fail safe FS1 series only       |

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

| Components   | Analysis Result |                |               |  |         |         |                  |
|--|-----------------|----------------|---------------|--|---------|---------|------------------|
|  | Cd<br>Cadmium   | Cr<br>Chromium | Hg<br>Mercury | Pb<br>Lead                                     | PBB     | PBDE    | TOTAL<br>HALOGEN |
| <b>As Component Total</b><br>(Typical Value)   | < 2ppm          | < 2ppm         | < 2ppm        | <10 ppm <sup>*1</sup><br>(1.4% <sup>*2</sup> ) | < 5 ppm | < 5 ppm | < 100ppm         |
| <b>Epoxy Resin compound</b><br>(mixture of phenolix resin, epoxy resin,<br>filler and non-Brominated fire retardant)<br>See Annex 1 for the detail | < 2ppm          | < 2ppm         | < 2ppm        | < 2ppm   | < 5ppm  | < 5ppm  | 88ppm            |
| <b>Lead frame and Clip</b><br>(Copper Alloy KFC)<br>See Annex 2 for the detail   | < 2ppm          | < 2ppm         | < 2ppm        | 11ppm <sup>*3</sup>                            | < 5ppm  | < 5ppm  | ---              |
| <b>Outside lead finish</b><br>(Matte-Tin plating)<br>See Annex 3 for the detail  | < 2ppm          | < 2ppm         | < 2ppm        | 22ppm <sup>*3</sup>                            | < 5ppm  | < 5ppm  | ---              |
| <b>Silicon Die</b><br>(Silicon + Ni electrode)<br>See Annex 4 for the detail   | < 2ppm          | < 2ppm         | < 2ppm        | 58ppm <sup>*3</sup>                            | < 5ppm  | < 5ppm  | ---              |
| <b>Passivation Glass</b><br><br>See Annex 5 for the detail   | < 2ppm          | < 2ppm         | < 2ppm        | 40wt% <sup>*4</sup>                            | < 5ppm  | < 5ppm  | <50pm            |
| <b>Die Bonding Solder</b><br>(Pb/Sn/Ag=88/10/2)<br>See Annex 6 for the detail  | < 2ppm          | < 2ppm         | < 2ppm        | 88wt% <sup>*5</sup>                            | < 5ppm  | < 5ppm  | 84ppm            |
| <b>Fail safe clip</b><br>(Copper Alloy + Sn plating)<br>See Annex 9 for the detail   | < 2ppm          | < 2ppm         | < 2ppm        | 32ppm <sup>*3</sup>                            | ---     | ---     | ---              |
| <b>Fail safe solder preform</b><br>(Sn/Bi=60/40)<br>See Annex 10 for the detail  | < 2ppm          | < 2ppm         | < 2ppm        | 110ppm <sup>*3</sup>                           | ---     | ---     | ---              |

- \*1 Less than 10ppm Pb content overall, excluding Pb from the die bonding solder and the passivation glass on the silicon die.**
- \*2 1.4wt% or 17mg of Pb (lead) content overall, including the RoHS-exempted use of Pb**
- \*3 Pb (lead) contained in lead frame, outside finish, silicon die, fail safe clip and fail safe solder preform is not exempted from restriction by RoHS, but considered as process contamination or naturally-occurring impurity in raw materials. Littelfuse does not add Pb intentionally.**
- \*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).**

**Please refer to Annex 12 of this report for the applicable exemptions of RoHS (EU Directive 2011/65/EU)**

**Annex 1: Analysis Result of Molding Compound (Page 1 of 7)****Intertek**

TEST REPORT

Number : WUXH00005739

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 : **Brown Epoxy Molding Compound.**  
Item Name : Epoxy Molding Compound.  
Vendor : Cookson Electronics Semiconductor Products.  
Component Or Part No. : CK-2000A/CK-2000C.  
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

## 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          |

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



Jessica Lu  
General Manager

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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 1: Analysis Result of Molding Compound (Page 2 of 7)



TEST REPORT

Number : WUXH00005739

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)  | ND     |
| Mercury (Hg) Content (mg/kg)                                     | ND     |
| Chromium (VI) (Cr <sup>VI</sup> ) 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

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## Annex 1: Analysis Result of Molding Compound (Page 3 of 7)



TEST REPORT

Number : WUXH00005739

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 <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 62321 Edition 1.0: 2008, By Solvent Extraction And Determined By GC-MSD And Further HPLC Confirmation When Necessary. | 5 mg/kg         |

Date Sample Received: Aug 01, 2011

Testing Period: Aug 01, 2011 To Aug 05, 2011

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## Annex 1: Analysis Result of Molding Compound (Page 4 of 7)



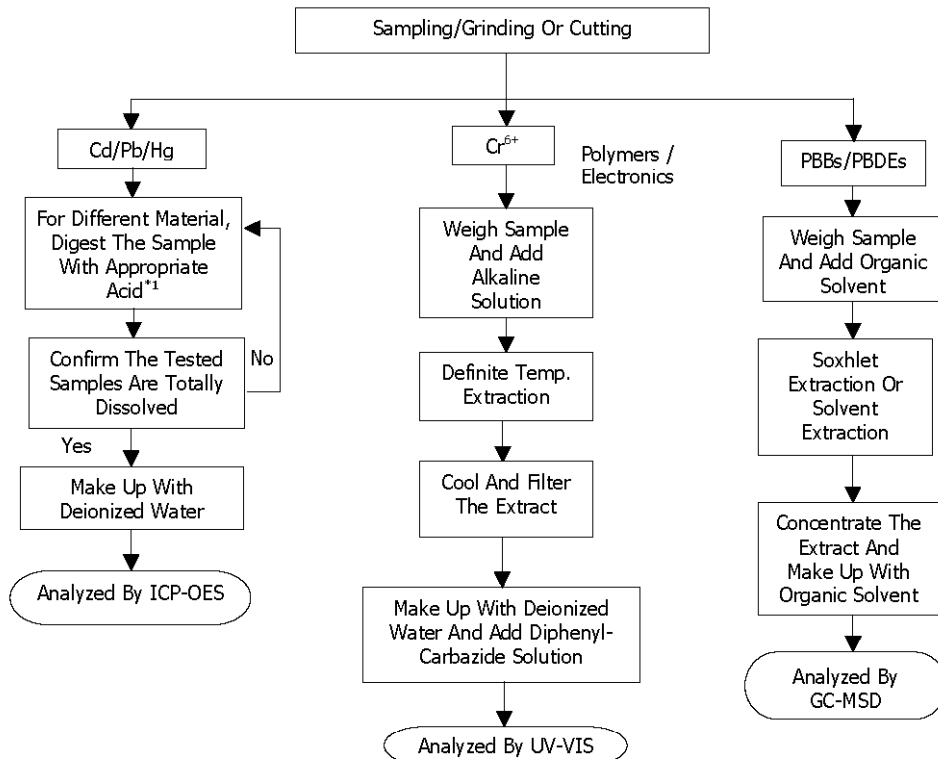
TEST REPORT

Number : WUXH00005739

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 <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>                   |

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## Annex 1: Analysis Result of Molding Compound (Page 5 of 7)



TEST REPORT

Number : WUXH00005739

Tests Conducted (As Requested By The Applicant)

2 Halogen Test

(I) Test Result Summary :

Halogen Content:

| Testing Item          | Result (ppm) |
|-----------------------|--------------|
| Fluorine (F) Content  | ND           |
| Chlorine (Cl) Content | 88           |
| 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 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

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**Annex 1: Analysis Result of Molding Compound (Page 6 of 7)****Intertek**

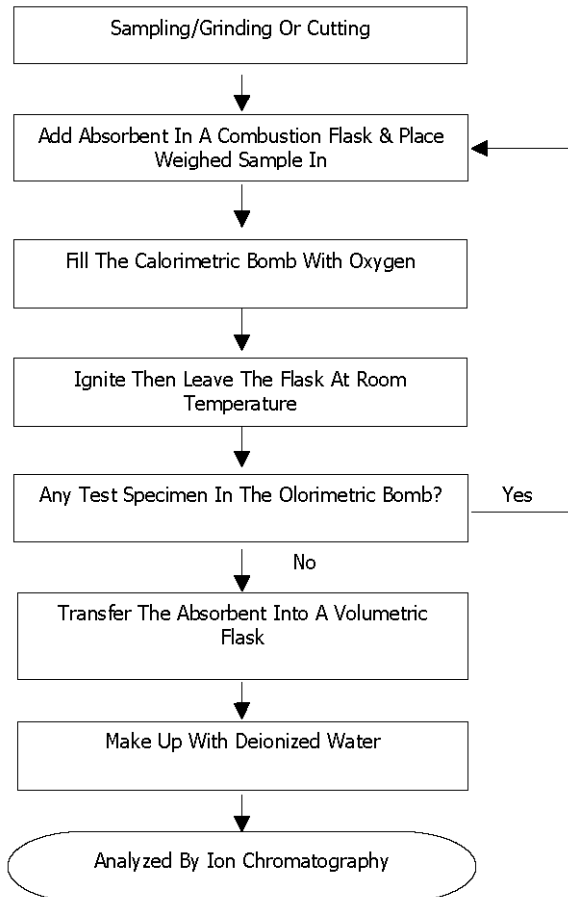
TEST REPORT

Number : WUXH00005739

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

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## Annex 1: Analysis Result of Molding Compound (Page 7 of 7)

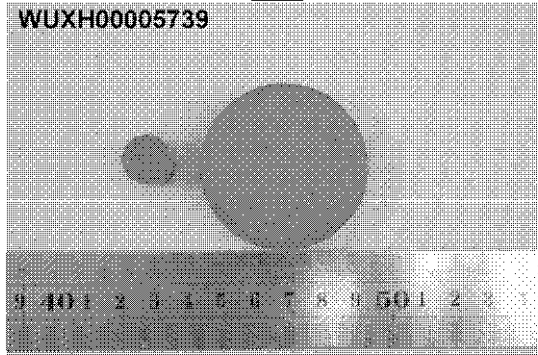
**Intertek**

TEST REPORT

Number : WUXH00005739

Tests Conducted (As Requested By The Applicant)

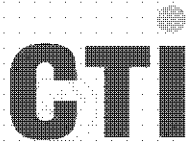
Photo



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## Annex 2: Analysis Result of Lead frame (Page 1 of 4)



# Test Report

Report No. RLSZD000935670003

Page 1 of 4

Applicant NINGBO ESC PHOTOELECTRON CO.,LTD

Address ECONOMIC &amp; TECHNICAL DEVELOPMENT ZONE,NO.88 YICHENG RD,XIAOGANG NINGBO,CHINA

**Report on the submitted sample(s) said to be**

Sample Name LEAD FRAME  
 Sample Description Cupreous/Silver color metal  
 Part No. TO LEAD FRAME CU SERIES  
 Material KFC  
 Sample Received Date Jun. 11, 2011  
 Testing Period Jun. 11, 2011 to Jun. 13, 2011

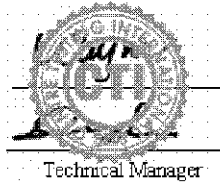
**Test Requested** 1.As specified by client, to determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs) content in the submitted sample.  
 2.As specified by client, to identify if there is the Hexavalent Chromium in the submitted sample.

**Test Method**

| Test Item(s)                          | Test Method                 | Measured Equipment(s) | MDL     |
|---------------------------------------|-----------------------------|-----------------------|---------|
| Lead(Pb)                              | IEC 62321:2008 Ed.1 Sec.9   | ICP-OES               | 2 mg/kg |
| Cadmium(Cd)                           | IEC 62321:2008 Ed.1 Sec.9   | ICP-OES               | 2 mg/kg |
| Mercury(Hg)                           | IEC 62321:2008 Ed.1 Sec.7   | ICP-OES               | 2 mg/kg |
| Hexavalent Chromium(Cr(VI))           | IEC 62321:2008 Ed.1 Annex B | UV-Vis                | /       |
| Polybrominated Biphenyls(PBBs)        | IEC 62321:2008 Ed.1 Annex A | GC-MS                 | 5 mg/kg |
| Polybrominated Diphenyl Ethers(PBDEs) | IEC 62321:2008 Ed.1 Annex A | GC-MS                 | 5 mg/kg |

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

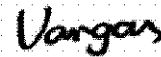
Tested by



Approved by

Technical Manager

Inspected by



Date

Jun. 13, 2011

No. 15504265



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



# Test Report

Report No. RLSZD000935670003

Page 2 of 4

**Test Result(s)**

| Tested Item(s) | Content |
|----------------|---------|
| Lead(Pb)       | N.D.    |
| Cadmium (Cd)   | N.D.    |
| Mercury(Hg)    | N.D.    |

| Tested Item(s)              | Conclusion |
|-----------------------------|------------|
| Hexavalent Chromium(Cr(VI)) | Negative   |

| Tested Item(s)                        | Content |
|---------------------------------------|---------|
| <b>Polybrominated Biphenyls(PBBs)</b> |         |
| Monobromobiphenyl                     | N.D.    |
| Dibromobiphenyl                       | N.D.    |
| Tribromobiphenyl                      | N.D.    |
| Tetrabromobiphenyl                    | N.D.    |
| Pentabromobiphenyl                    | N.D.    |
| Hexabromobiphenyl                     | N.D.    |
| Heptabromobiphenyl                    | N.D.    |
| Octabromobiphenyl                     | N.D.    |
| Nonabromobiphenyl                     | N.D.    |
| Decabromobiphenyl                     | N.D.    |

| Tested Item(s)                               | Content |
|--|---------|
| <b>Polybrominated Diphenyl Ethers(PBDEs)</b> |         |
| Monobromodiphenyl ether                      | N.D.    |
| Dibromodiphenyl ether                        | N.D.    |
| Tribromodiphenyl ether                       | N.D.    |
| Tetrabromodiphenyl ether                     | N.D.    |
| Pentabromodiphenyl ether                     | N.D.    |
| Hexabromodiphenyl ether                      | N.D.    |
| Heptabromodiphenyl ether                     | N.D.    |
| Octabromodiphenyl ether                      | N.D.    |
| Nonabromodiphenyl ether                      | N.D.    |
| Decabromodiphenyl ether                      | N.D.    |

**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 50cm<sup>2</sup> sample surface area used.

## Annex 2: Analysis Result of Lead frame (Page 3 of 4)

# CTI

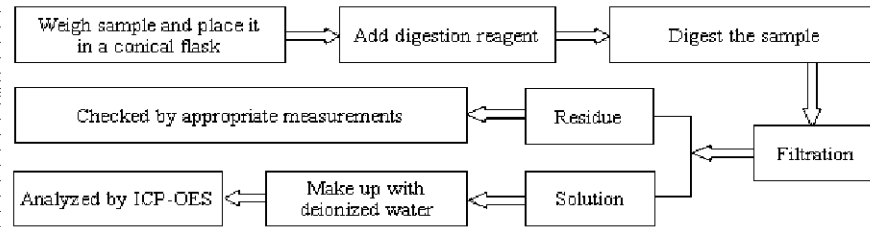
## Test Report

Report No. RLSZD000935670003

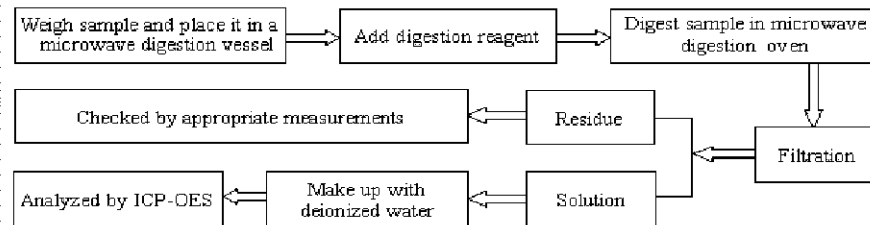
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### Test Process

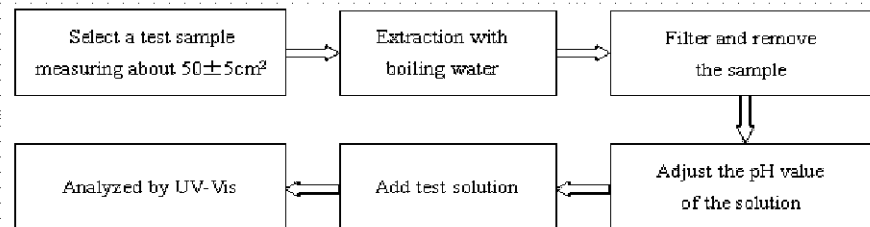
#### 1. Lead(Pb), Cadmium(Cd)



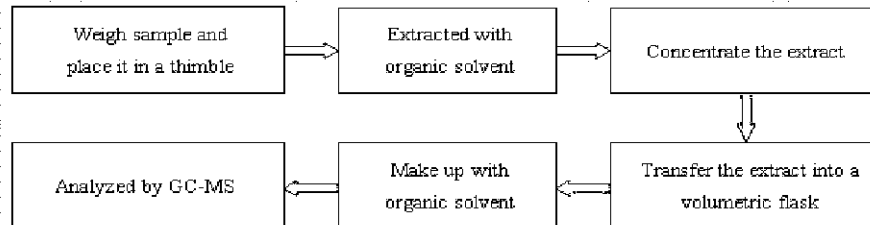
#### 2. Mercury(Hg)



#### 3. Hexavalent Chromium(Cr(VI))



#### 4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs)



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

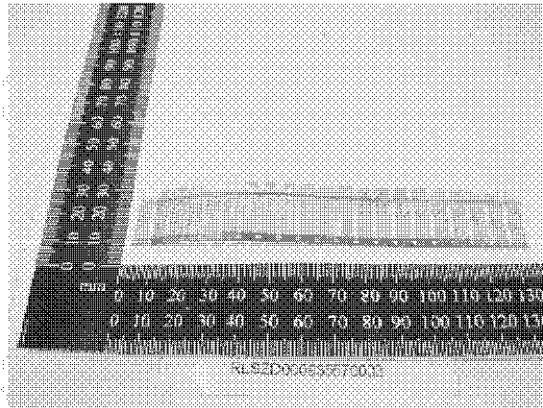
**CTI**

### Test Report

Report No. RLSZD000935670003

Page 4 of 4

#### Photo(s) of the sample(s)



\*\*\* End of report \*\*\*

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## Annex 3: Analysis Result of Lead finish (page 4 of 5)



### Test Report

No. CANEC1005451006

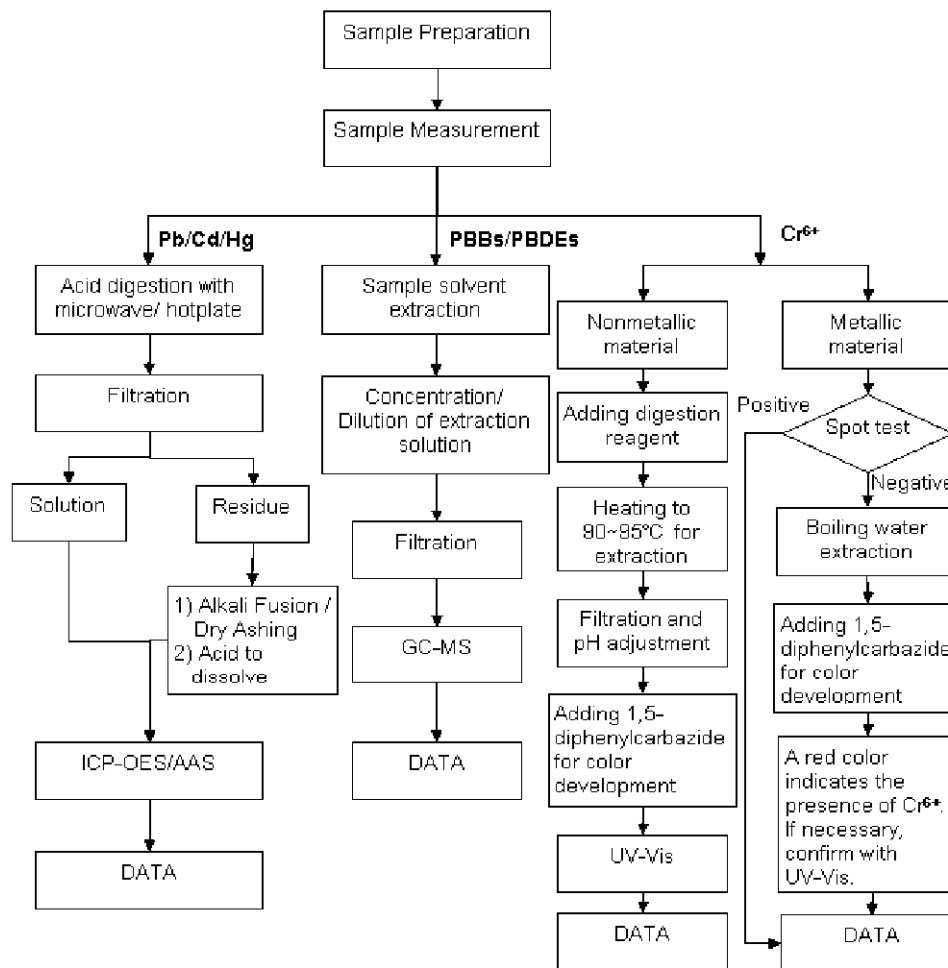
Date: 04 Jan 2011

Page 4 of 5

### ATTACHMENTS

#### RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bella Wang / Cutey Yu / Ross Zhan
- 2) Name of the person in charge of testing: Adams Yu / Ryan Yang
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr6+ and PBBs/PBDEs test method excluded).



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### Annex 3: Analysis Result of Lead finish (page 5 of 5)



**Test Report**

No. CANEC1005451006

Date: 04 Jan 2011

Page 5 of 5

Sample photo:



SGS authenticate the photo on original report only

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**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 4567 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 <sup>VI</sup> ) 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

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## Annex 5: 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 <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 01, 2011

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

Page 3 Of 5

**Intertek Testing Services Wuxi Ltd.**

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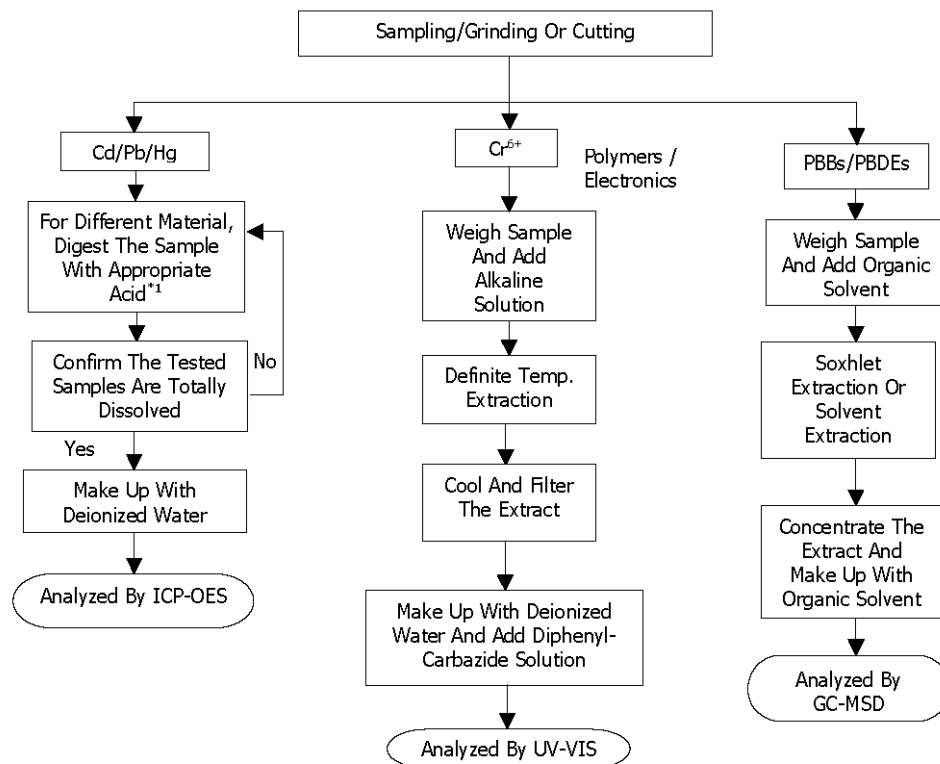
## Annex 5: Analysis Result of Ni-plated Wafer (Page 4 of 5)



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 <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>                   |

Page 4 Of 5

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

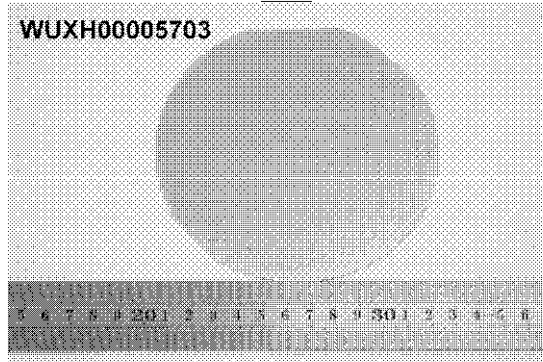
**Intertek**

TEST REPORT

Number : WUXH00005703

Tests Conducted (As Requested By The Applicant)

Photo



Page 5 Of 5

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**Annex 6: 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

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## Annex 6: 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 <sup>6+</sup> ) 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 6: 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 <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 01, 2011

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

Page 3 Of 7

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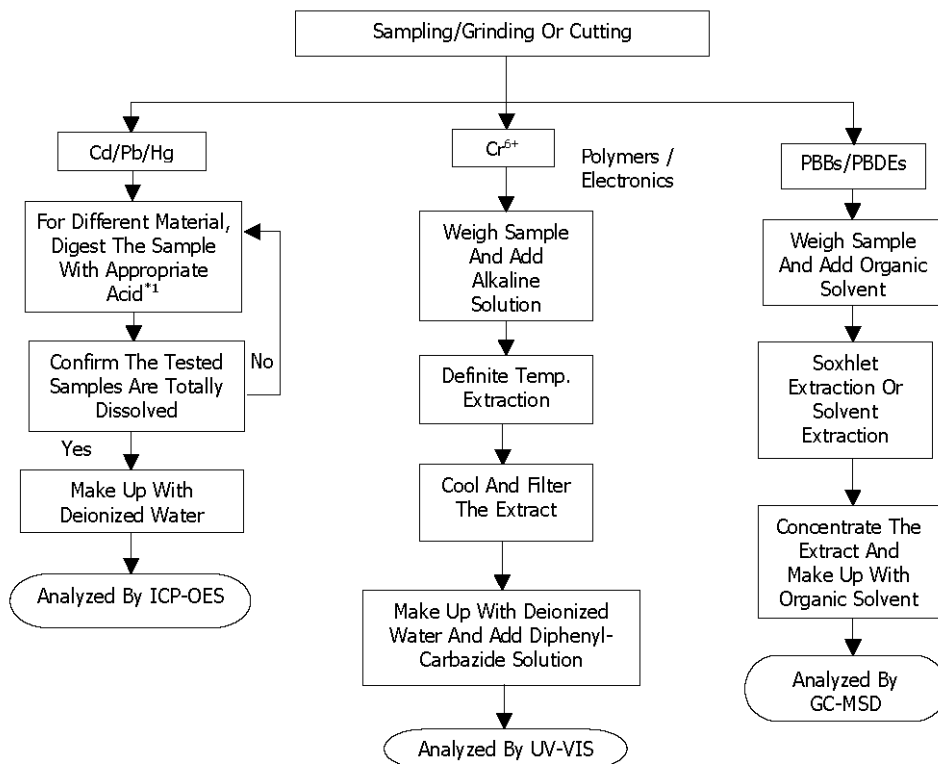
## Annex 6: Analysis Result of Passivation Glass (Page 4 of 7)



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 <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. Halogen Test  
 (I) Test Result Summary :

Page 4 Of 7

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

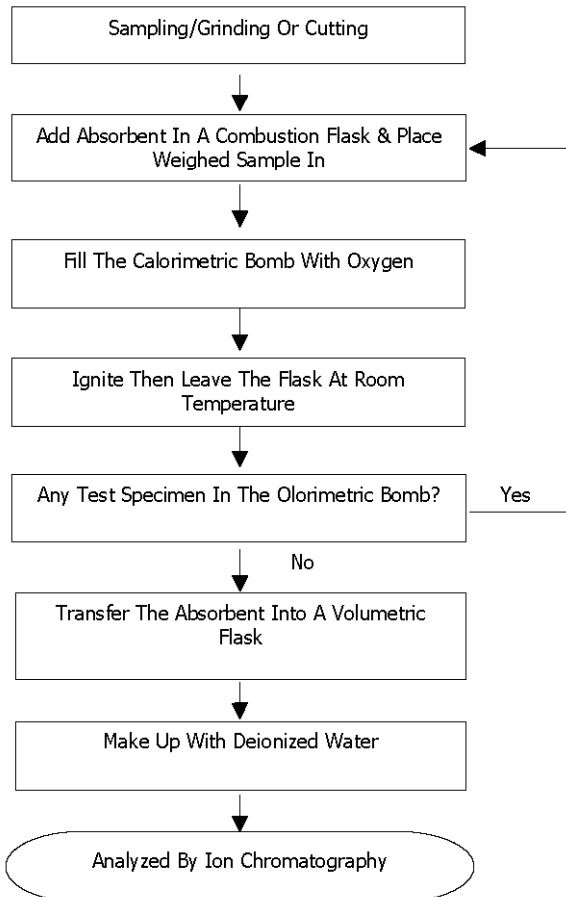
TEST REPORT

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

Page 6 Of 7

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

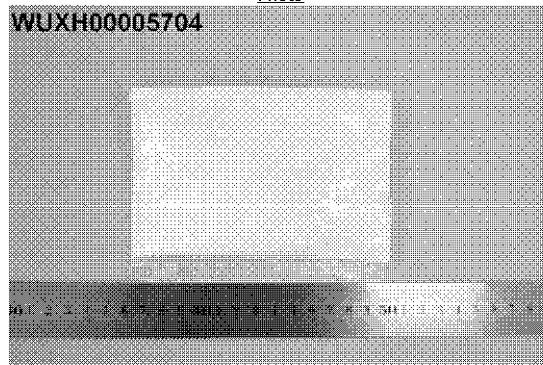
**Intertek**

TEST REPORT

Number : WUXH00005704

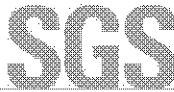
Tests Conducted (As Requested By The Applicant)

Photo



Page 7 Of 7

**Intertek Testing Services Wuxi Ltd.**  
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**Annex 7: Analysis Result of Die Bonding Solder (Page 1 of 4)****Test Report**

No. SHAEC1107551802

Date: 31 May 2011

Page 1 of 4

SHENZHEN EARLYSUN TECHNOLOGY CO.,LTD

6F,BUILDING OF BAODAZHOU,INTERCHANGE OF LONGZHU AVENUE AND LONGZHU  
3ROAD,TAOYUAN STREET ,NANSHAN,SHENZHEN,CHINAThe following sample(s) was/were submitted and identified on behalf of the clients as : High-temperature Solder  
Paste

SGS Job No. : SZ13136369 - SZ

Model No. : (ES-660,ES-500,ES-610,ES-620,ES-510,ES-520(Sn5Pb92.5Ag2.5,Sn5Pb95,Sn  
5Pb93.5Ag1.5,Sn10Pb90,Sn10Pb88Ag2,Sn20Pb78Ag2,Sn3Pb97,Sn5Pb93Ag2)  
)mixture

Date of Sample Received : 23 May 2011

Testing Period : 23 May 2011 - 31 May 2011

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 : Based on the performed tests on submitted samples, the results comply with the  
RoHS Directive 2002/95/EC and its subsequent amendments.Signed for and on behalf of  
SGS-CSTC Ltd.Fan Jingjie, JJ  
Approved Signatory

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Please do not state the results shown in this test report for only to the sample(s) tested.

315A Shing Hee 229, Vision Road, Xixia District, Shanghai, China 200233  
中福·上海·徐汇区宜山路229号3号楼 邮编: 200233TEL: (86-21) 61402557 FAX: (86-21) 64550679  
HL: (86-21) 61402544 HL: (86-21) 64506333www.ct.sgs.com  
sgschina@sgs.com

Member of the SGS Group (SGS SA)

## Annex 7: Analysis Result of Die Bonding Solder (Page 2 of 4)



### Test Report

No. SHAEC1107551802

Date: 31 May 2011

Page 2 of 4

Test Results :

#### Test Part Description :

| Specimen No. | SGS Sample ID    | Description |
|--------------|------------------|-------------|
| 1            | SHA11-075518.001 | Grey solid  |

Remarks :

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected ( < MDL )
- (4) "-" = Not Regulated

#### RoHS Directive 2002/95/EC

Test Method : (1) With reference to IEC 62321:2008 for Cadmium content. Analysis was performed by ICP-OES.  
 (2) With reference to IEC 62321:2008 for Mercury content. Analysis was performed by ICP-OES.  
 (3) Titration method  
 (4) With reference to IEC 62321:2008 for Hexavalent Chromium by Colorimetric Method. Analysis was performed by UV/Vis Spectrophotometer.  
 (5) With reference to IEC 62321:2008 for PBBs / PBDEs content. Analysis was performed by GC/MS.

| Test Item(s)               | Limit | Unit  | MDL | 001    |
|----------------------------|-------|-------|-----|--------|
| Cadmium (Cd)               | 100   | mg/kg | 2   | ND     |
| Mercury (Hg)               | 1,000 | mg/kg | 2   | ND     |
| Lead (Pb)                  | -     | %     | -   | 90.82▲ |
| Hexavalent Chromium (CrVI) | 1,000 | mg/kg | 2   | ND     |
| Sum of PBBs                | 1,000 | mg/kg | -   | ND     |
| Monobromobiphenyl          | -     | mg/kg | 5   | ND     |
| Dibromobiphenyl            | -     | mg/kg | 5   | ND     |
| Tribromobiphenyl           | -     | mg/kg | 5   | ND     |
| Tetrabromobiphenyl         | -     | mg/kg | 5   | ND     |
| Pentabromobiphenyl         | -     | mg/kg | 5   | ND     |
| Hexabromobiphenyl          | -     | mg/kg | 5   | ND     |
| Heptabromobiphenyl         | -     | mg/kg | 5   | ND     |
| Octabromobiphenyl          | -     | mg/kg | 5   | ND     |
| Nonabromobiphenyl          | -     | mg/kg | 5   | ND     |
| Decabromobiphenyl          | -     | mg/kg | 5   | ND     |
| Sum of PBDEs               | 1,000 | mg/kg | -   | ND     |

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## Annex 7: Analysis Result of Die Bonding Solder (Page 3 of 4)



### Test Report

No. SHAEC1107551802

Date: 31 May 2011

Page 3 of 4

| Test Item(s)             | Limit | Unit  | MDL | 001 |
|--------------------------|-------|-------|-----|-----|
| Monobromodiphenyl ether  | -     | mg/kg | 5   | ND  |
| Dibromodiphenyl ether    | -     | mg/kg | 5   | ND  |
| Tribromodiphenyl ether   | -     | mg/kg | 5   | ND  |
| Tetrabromodiphenyl ether | -     | mg/kg | 5   | ND  |
| Pentabromodiphenyl ether | -     | mg/kg | 5   | ND  |
| Hexabromodiphenyl ether  | -     | mg/kg | 5   | ND  |
| Heptabromodiphenyl ether | -     | mg/kg | 5   | ND  |
| Octabromodiphenyl ether  | -     | mg/kg | 5   | ND  |
| Nonabromodiphenyl ether  | -     | mg/kg | 5   | ND  |
| Decabromodiphenyl ether  | -     | mg/kg | 5   | ND  |

#### Notes :

- (1) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC
- (2) \*As declared by the applicant, the materials fall into exemption items according to EU directive 2002/95/EC(RoHS), and its subsequent amendments.

#### Halogen

Test Method : With reference to EN 14582: 2007, analysis was performed by Ion Chromatograph (IC).

| Test Item(s)  | Unit  | MDL | 001 |
|---------------|-------|-----|-----|
| Fluorine (F)  | mg/kg | 50  | ND  |
| Chlorine (Cl) | mg/kg | 50  | ND  |
| Bromine (Br)  | mg/kg | 50  | 84  |
| Iodine (I)    | mg/kg | 50  | ND  |

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



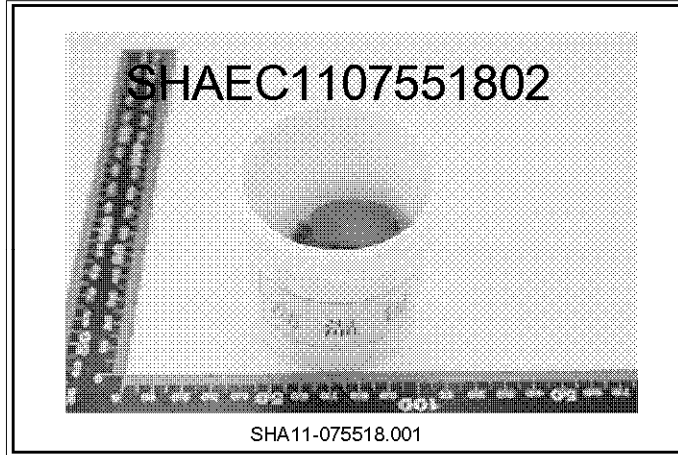
### Test Report

No. SHAEC1107551802

Date: 31 May 2011

Page 4 of 4

Sample photo:



SGS authenticate the photo on original report only

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

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**Annex 10: Analysis Result of Fail Safe Clip (Page 1 of 4)****Intertek**

TEST REPORT

Number : WUXH00005954

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 : Sep 07, 2011

## Sample Description As Declared:

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

Item Name : Fail Safe Clip.

Vendor : G-Shank.

Component Or Part No. : Copper With Tin Plating.

Test Item : Cd, Pb, Hg, CrVI.

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 4

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## Annex 10: Analysis Result of Fail Safe Clip (Page 2 of 4)



TEST REPORT

Number : WUXH00005954

**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)  | 32     |
| 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> ) | N      |

**Remark:**

mg/kg = Milligram Per Kilogram = ppm

 mg/kg With 50cm<sup>2</sup> = Milligram Per Kilogram With 50 Square Centimeter

ND = Not Detected

N = Negative

**(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.

**(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 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: Sep 01, 2011

Testing Period: Sep 01, 2011 To Sep 06, 2011

Page 2 Of 4

**Intertek Testing Services Wuxi Ltd.**

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## Annex 10: Analysis Result of Fail Safe Clip (Page 3 of 4)



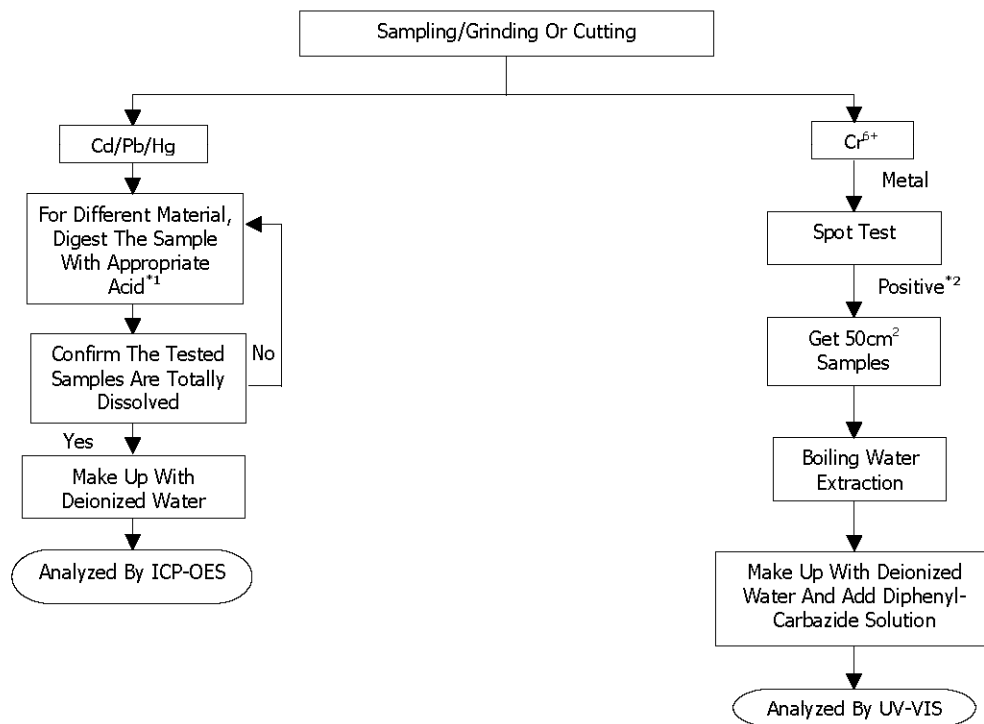
TEST REPORT

Number : WUXH00005954

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)

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.

Page 3 Of 4

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## Annex 10: Analysis Result of Fail Safe Clip (Page 4 of 4)

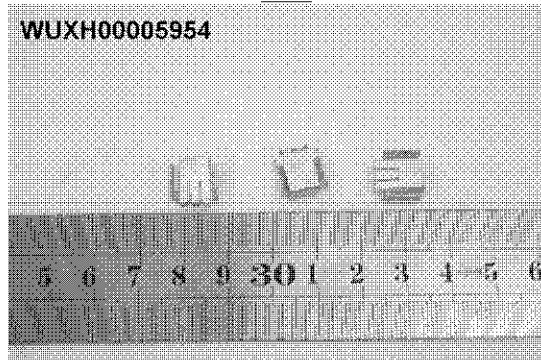
**Intertek**

TEST REPORT

Number : WUXH00005954

Tests Conducted (As Requested By The Applicant)

Photo



Page 4 Of 4

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**Annex 11: Analysis Result of Fail Solder Preform (Page 1 of 4)****Intertek**

TEST REPORT

Number : WUXH00005955

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 : Sep 07, 2011

## Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **Silvery Grey Metal.**  
Item Name : Fail Safe Solder Pellet.  
Vendor : Indium Corporation Of America.  
Component Or Part No. : Sn60 Bi40.  
Test Item : Cd, Pb, Hg, CrVI.

## Tests Conducted:

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

## 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          |

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



Jessica Lu  
General Manager

Page 1 Of 4

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## Annex 11: Analysis Result of Fail Solder Preform (Page 2 of 4)



TEST REPORT

Number : WUXH00005955

**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)  | 110    |
| 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> ) | N      |

**Remark:**

mg/kg = Milligram Per Kilogram = ppm

 mg/kg With 50cm<sup>2</sup> = Milligram Per Kilogram With 50 Square Centimeter

ND = Not Detected

N = Negative

**(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.

**(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 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: Sep 01, 2011

Testing Period: Sep 01, 2011 To Sep 06, 2011

Page 2 Of 4

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## Annex 11: Analysis Result of Fail Solder Preform (Page 3 of 4)



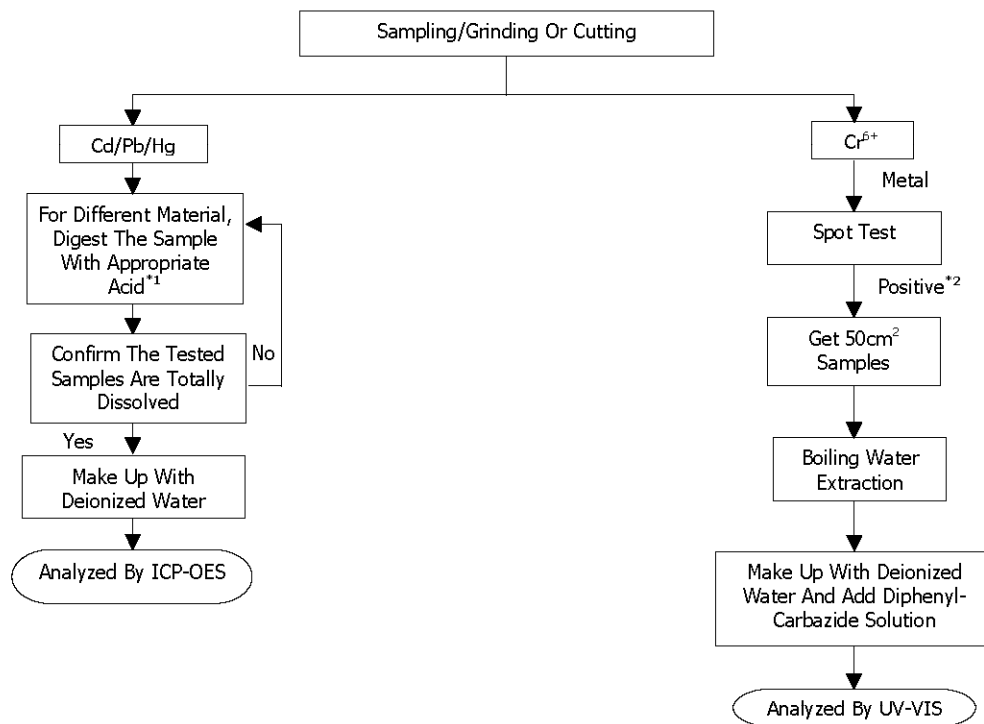
TEST REPORT

Number : WUXH00005955

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)

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.

Page 3 Of 4

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## Annex 11: Analysis Result of Fail Solder Preform (Page 4 of 4)

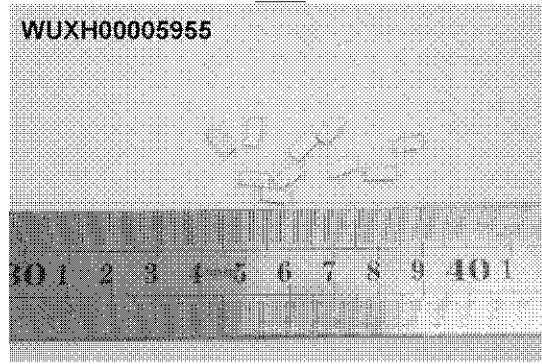
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TEST REPORT

Number : WUXH00005955

Tests Conducted (As Requested By The Applicant)

Photo



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## Annex 12: Applicable RoHS exemptions (2011/65/EU Annex III)

1.7.2011

EN

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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. piezo-electronic 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 EEE 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 TEE 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 EEE 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 EEE 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 EEE 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 EEE placed on the market before 1 January 2011 |