

JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY(SUQIAN) CO.,LTD.
NO.5 PUTUO MOUNT RD.,SUCHENG DISTRICT, SUQIAN,JIANGSU CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as :
TO-251/252 (Green) package part (Include TO-251/251S/TO-252-2L/3L/5L); TO-251/252 (Green) pin lead
part (Include TO-251/251S/TO-252-2L/3L/5L)

SGS Job No. : SP13-006082 - SH
Composition : Silvery Metal Part , Black Plastic Part
Date of Sample Received : 19 Mar2013
Testing Period : 19 Mar 2013 - 22 Mar 2013
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).

Signed for and on behalf of
SGS-CSTC Ltd.



Test Results :

Test Part Description :

| Specimen No. | SGS Sample ID | Description |
|--------------|------------------|--------------------------|
| 1 | SHA13-040679.007 | Black noumenon(mix all*) |
| 2 | SHA13-040679.008 | Silvery pin part |

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

- (1) Determination of Cadmium by ICP-OES.
- (2) Determination of Lead by ICP-OES.
- (3) Determination of Mercury by ICP-OES.
- (4) Determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.
- (5) Determination of PBBs / PBDEs content by GC-MS.

| Test Item(s) | Limit | Unit | MDL | 007 |
|------------------------------|-------|-------|-----|-----|
| Cadmium (Cd) | 100 | mg/kg | 2 | ND |
| Lead (Pb) | 1000 | mg/kg | 2 | ND |
| Mercury (Hg) | 1000 | mg/kg | 2 | ND |
| Hexavalent Chromium (Cr(VI)) | 1000 | mg/kg | 2 | ND |
| Sum of PBBs | 1000 | 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 | 1000 | mg/kg | - | ND |

| Test Item(s) | Limit | Unit | MDL | 007 |
|--------------------------|-------|-------|-----|-----|
| 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 directive 2011/65/EU, Annex II

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

- (1) Determination of Cadmium by ICP-OES.
- (2) Determination of Lead by ICP-OES.
- (3) Determination of Mercury by ICP-OES.
- (4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method using UV-Vis.
- (5) Determination of PBBs / PBDEs by GC-MS.

| Test Item(s) | Limit | Unit | MDL | 008 |
|------------------------------|-------|-------|-----|----------|
| Cadmium (Cd) | 100 | mg/kg | 2 | ND |
| Lead (Pb) | 1000 | mg/kg | 2 | 9 |
| Mercury (Hg) | 1000 | mg/kg | 2 | ND |
| Hexavalent Chromium (Cr(VI)) | - | - | ◇ | Negative |
| Sum of PBBs | 1000 | 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 |

| <u>Test Item(s)</u> | <u>Limit</u> | <u>Unit</u> | <u>MDL</u> | <u>008</u> |
|--------------------------|--------------|-------------|------------|------------|
| Sum of PBDEs | 1000 | mg/kg | - | ND |
| 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 directive 2011/65/EU, Annex II

(2) ◊Spot-test:

Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) 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 Cr(VI) coating

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

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

Halogen

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

| <u>Test Item(s)</u> | <u>Unit</u> | <u>MDL</u> | <u>007</u> |
|---------------------|-------------|------------|------------|
| Fluorine (F) | mg/kg | 50 | ND |
| Chlorine (Cl) | mg/kg | 50 | ND |
| Bromine (Br) | mg/kg | 50 | ND |
| Iodine (I) | mg/kg | 50 | ND |

Element(s)

Test Method : With reference to US EPA Method 3052:1996, analysis was performed by ICP-OES.

| <u>Test Item(s)</u> | <u>Unit</u> | <u>MDL</u> | <u>007</u> |
|---------------------|-------------|------------|------------|
| Antimony (Sb) | mg/kg | 10 | ND |
| Phosphorus (P) | mg/kg | 20 | 127 |

Phthalates

Test Method : With reference to EN14372: 2004, analysis was performed by GC-MS.

| <u>Test Item(s)</u> | <u>Unit</u> | <u>MDL</u> | <u>007</u> |
|-------------------------------------|-------------|------------|------------|
| Dibutyl Phthalate (DBP) | % | 0.003 | ND |
| Benzylbutyl Phthalate (BBP) | % | 0.003 | ND |
| Bis-(2-ethylhexyl) Phthalate (DEHP) | % | 0.003 | ND |
| Diisononyl Phthalate (DINP) | % | 0.010 | ND |
| Di-n-octyl Phthalate (DNOP) | % | 0.003 | ND |
| Diisodecyl Phthalate (DIDP) | % | 0.010 | ND |
| Di-n-hexyl Phthalate (DnHP) | % | 0.003 | ND |
| Diisobutyl Phthalate (DIBP) | % | 0.003 | ND |

Notes :

(1) DBP, BBP, DEHP Reference information: Entry 51 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC):

- i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles.
- ii) Toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.

Please refer to Regulation (EC) No 552/2009 to get more detail information

DINP, DNOP, DIDP Reference information: Entry 52 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC).

- i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children.
- ii) Such toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.

Please refer to Regulation (EC) No 552/2009 to get more detail information

Hexabromocyclododecane (HBCDD)

Test Method : With reference to US EPA 3550C: 2007, analysis was performed by GC-MS.

| <u>Test Item(s)</u> | <u>Unit</u> | <u>MDL</u> | <u>007</u> |
|--------------------------------|-------------|------------|------------|
| Hexabromocyclododecane (HBCDD) | mg/kg | 10 | ND |

PFOS (Perfluorooctane Sulfonates) and PFOA (Perfluorooctanoic Acid)

Test Method : With reference to US EPA 3550C: 2007, analysis was performed by HPLC-MS.

| <u>Test Item(s)</u> | <u>Limit</u> | <u>Unit</u> | <u>MDL</u> | <u>007</u> |
|--|--------------|-------------|------------|------------|
| Perfluorooctane Sulfonates (PFOS) and related Acid, Metal Salt and Amide | 1000 | mg/kg | 10 | ND |
| Perfluorooctanoic Acid (PFOA) | - | mg/kg | 10 | ND |

Notes :

Max. limit specified by commission regulation (EU) No. 757/2010 amending regulation (EC) No 850/2004.

Polycyclic aromatic hydrocarbons (PAH)

Test Method : With reference to ZEK 01.4-08 of German ZLS and its amendments, analysis was performed by GC-MS.

| <u>Test Item(s)</u> | <u>Unit</u> | <u>MDL</u> | <u>007</u> |
|---|-------------|------------|------------|
| Sum of 18 PAH | mg/kg | - | ND |
| Naphthalene(NAP) | mg/kg | 0.2 | ND |
| Acenaphthylene(ANY) | mg/kg | 0.2 | ND |
| Acenaphthene(ANA) | mg/kg | 0.2 | ND |
| Fluorene(FLU) | mg/kg | 0.2 | ND |
| Phenanthrene(PHE) | mg/kg | 0.2 | ND |
| Anthracene(ANT) | mg/kg | 0.2 | ND |
| Fluoranthene(FLT) | mg/kg | 0.2 | ND |
| Pyrene(PYR) | mg/kg | 0.2 | ND |
| Benzo(a)anthracene(BaA) | mg/kg | 0.2 | ND |
| Chrysene(CHR) | mg/kg | 0.2 | ND |
| Benzo(b)fluoranthene(BbF) and Benzo(j)fluoranthene(BjF) | mg/kg | 0.4 | ND |
| Benzo(k)fluoranthene(BkF) | mg/kg | 0.2 | ND |
| Benzo(a)pyrene(BaP) | mg/kg | 0.2 | ND |
| Benzo(e)pyrene(BeP) | mg/kg | 0.2 | ND |
| Indeno(1,2,3-c,d)pyrene(IPY) | mg/kg | 0.2 | ND |

| Test Item(s) | Unit | MDL | 007 |
|-----------------------------|-------|-----|-----|
| Dibenzo(a,h)anthracene(DBA) | mg/kg | 0.2 | ND |
| Benzo(g,h,i)perylene(BPE) | mg/kg | 0.2 | ND |

ZEK 01_4-08: Restraint maximum values for products

| Parameter | Category 1 | Category 2 | Category 3 |
|------------------------|---|--|--|
| | Material intended to be put in the mouth or material for toys with normal skin contact for children aged <36 months | Materials those are not included in Category 1, with predictable contact with the skin longer than 30 s. (long-term skin contact). | Materials those are not included in Category 1 or 2, with predictable skin contact up to 30 s (short-term skin contact). |
| Benzo(a)pyrene (mg/kg) | <0.2** | 1 | 20 |
| Sum of 18 PAH (mg/kg)* | <0.2** | 10 | 200 |

Notes:

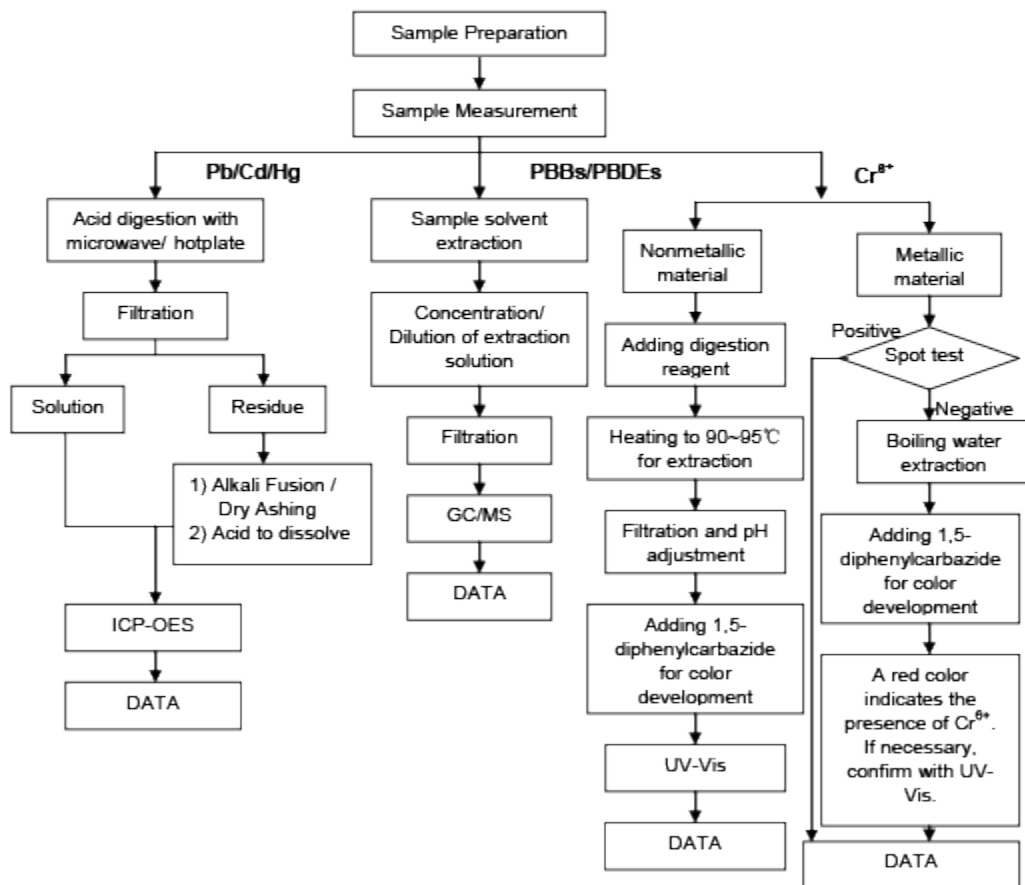
- ^ = Only PAH substances >0.2 mg/kg are taken into account while calculating the sum of PAHs
- ** = In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material which is intended to be put in the mouth by additional specific migration tests of PAH components based on DIN EN 11867/EN13130 and §64 LFGB 80, 30-1. The conclusion of the migration test results must be made based on food law criteria.

Remark: *The sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value and only for reference.

ATTACHMENTS

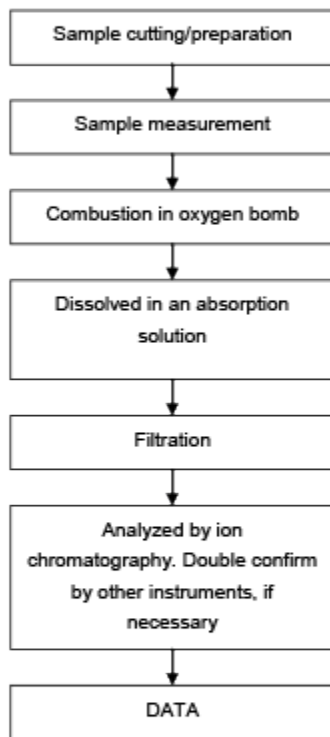
RoHS Testing Flow Chart

- 1) Name of the person who made testing: Jan Shi/Yoyo Wang/Allen Xiao/Gary Xu
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/ Linda Li
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs test method excluded)



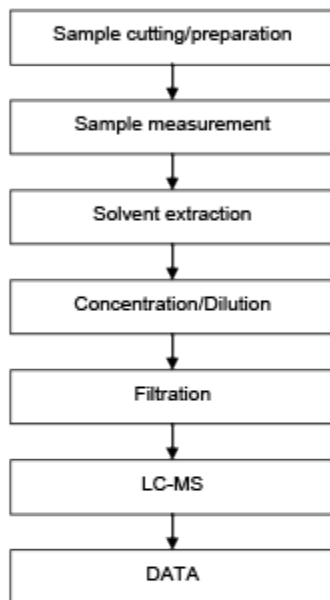
Halogen Testing Flow Chart

- 1) Name of the person who made testing: Sisily Yin
- 2) Name of the person in charge of testing: Linda Li



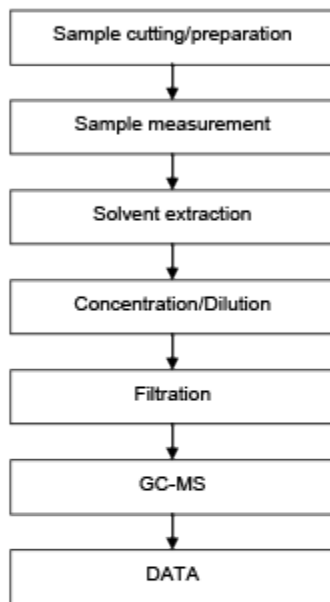
PFOS/PFOA Testing Flow Chart

- 1) Name of the person who made testing: Judy Li
- 2) Name of the person in charge of testing: Myra Ma



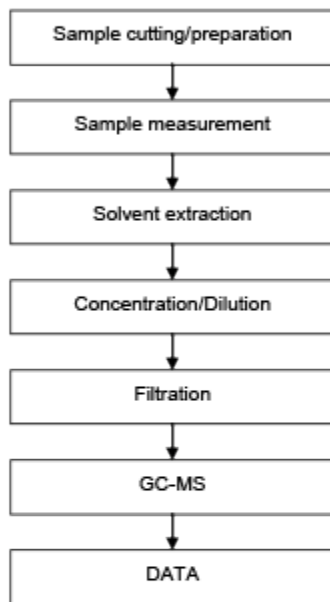
Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Elyn Yao
- 2) Name of the person in charge of testing: Myra Ma



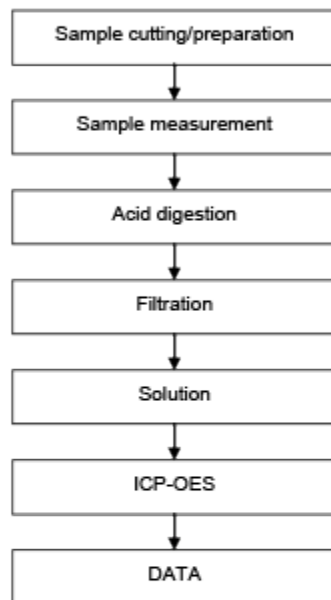
PAH Testing Flow Chart

- 1) Name of the person who made testing: Lisa Duan
- 2) Name of the person in charge of testing: Jessie Huang



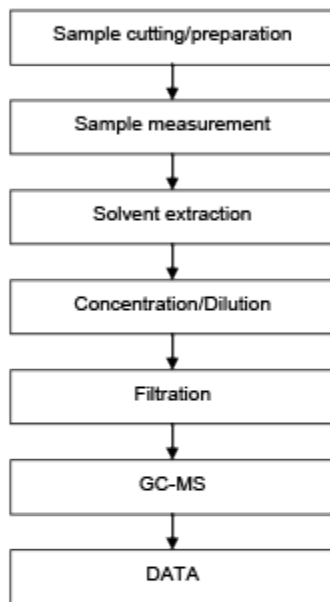
Elements Testing Flow Chart

- 1) Name of the person who made testing: Yoyo Wang/ Jan Shi
- 2) Name of the person in charge of testing: Jeff Zhang

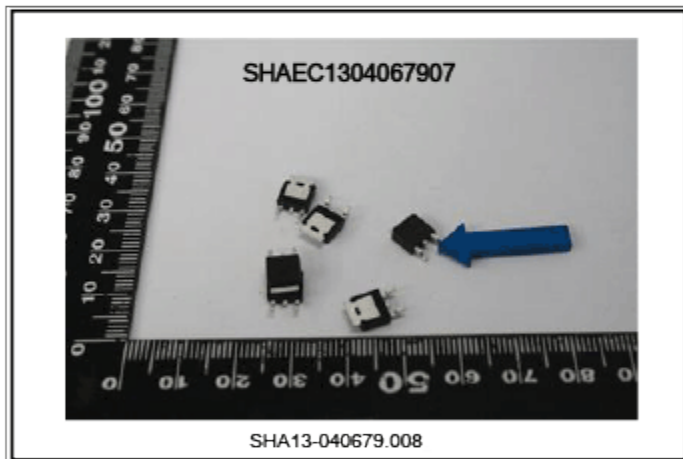
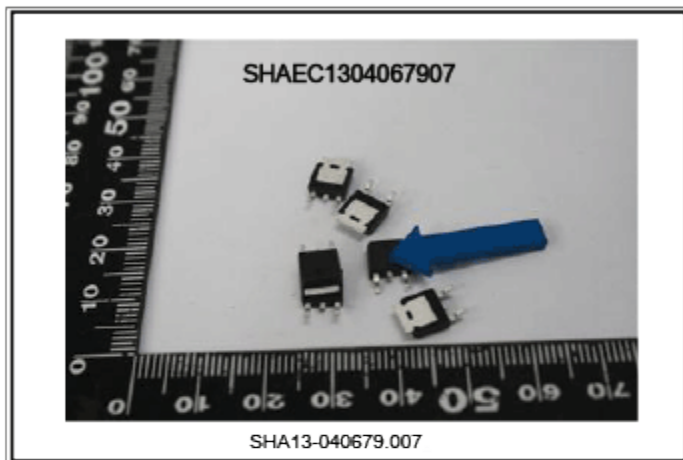


HBCDD Testing Flow Chart

- 1) Name of the person who made testing: Gary Xu
- 2) Name of the person in charge of testing: Jessie Huang



Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***