

Test Report No. SHAEC1304067909 Date: 26 Mar 2013 Page 1 of 15

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-220/263 (Green) package part (Include TO-220-2L 3L 5L 9L,TO-220-3L-C(T0.5mm) , TO-263-2L 3L 5L); TO-220/263 (Green) pinlead part (Include TO-220-2L 3L 5L 9L,TO-220-3L-C(T0.5mm) , TO-263-2L 3L 5L)

SGS Job No.: SP13-006082 - SH

Composition: Silvery Metal Part, Black Plastic Part

Date of Sample Received: 19 Mar 2013

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.

JJ Fan

Approved Signatory

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# **Test Report** No. SHAEC1304067909 Date: 26 Mar 2013 Page 2 of 15

Test Results:

### **Test Part Description:**

Specimen No.	SGS Sample ID	Description
1	SHA13-040679.009	Black noumenon(mix all*)
2	SHA13-040679.010	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)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>009</u>
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

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Test Report	No. SHAEC13040679	09	Date: 26	Mar 2013	Page 3 of 15
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>009</u>	
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	010
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	6
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	$\Diamond$	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

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Test Report	No. SHAEC1304067909		Date: 26 N	Mar 2013	Page 4 of 15
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>010</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 cm<sup>2</sup> 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).

Test Item(s)	<u>Unit</u>	<u>MDL</u>	<u>009</u>
Fluorine (F)	mg/kg	50	ND
Chlorine (CI)	mg/kg	50	94
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.

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Test Report	No. SHAEC1304067909		Date: 26 M	ar 2013	Page 5 of 15
Test Item(s)	<u>l</u>	<u>Unit</u>	<u>MDL</u>	<u>009</u>	
Antimony (Sb)	m	ng/kg	10	ND	
Phosphorus (P)	m	ng/kg	20	38	

### **Phthalates**

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

Test Item(s)	<u>Unit</u>	<u>MDL</u>	<u>009</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.

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**Test Report** No. SHAEC1304067909 Date: 26 Mar 2013 Page 6 of 15

Test Item(s) Unit MDL 009

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.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	009
Perfluorooctane Sulfonates (PFOS) and related	1000	mg/kg	10	ND
Acid,Metal Salt and Amide				
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.

Test Item(s)	<u>Unit</u>	<u>MDL</u>	<u>009</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	mg/kg	0.4	ND
Benzo(j)fluoranthene(BjF)			
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

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**Test Report** No. SHAEC1304067909 Date: 26 Mar 2013 Page 7 of 15

 Test Item(s)
 Unit
 MDL
 009

 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: Restraining maximum values for products

Parameter	Category 1	Category 2	Category 3
	Material indented 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 indented to be put in the mouth by additional specific migration tests of PAH components based on DIN EN 1186ff/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.

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If the company is a stated the results shown in this test report refer only to the sample(s) tested.



No. SHAEC1304067909

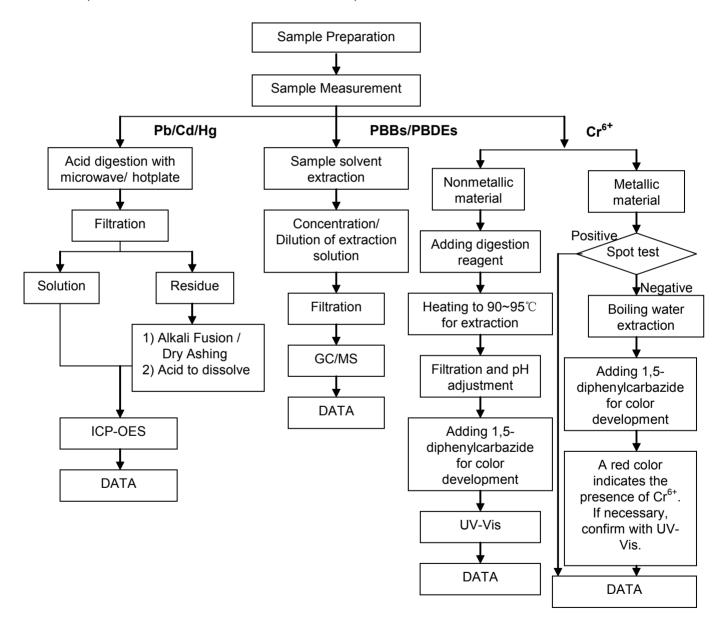
Date: 26 Mar 2013

Page 8 of 15

### **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. (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded)



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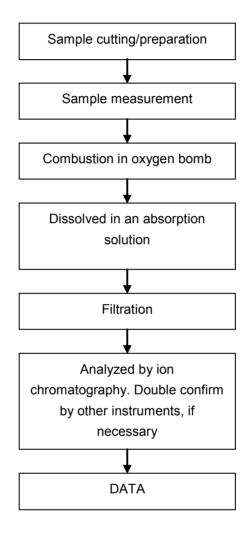
No. SHAEC1304067909

Date: 26 Mar 2013 Page 9 of 15

## **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





No. SHAEC1304067909

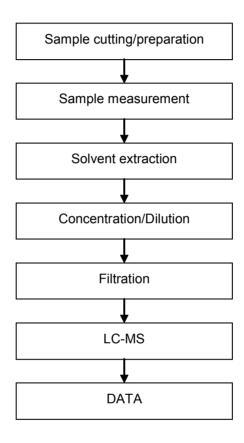
Page 10 of 15

## **PFOS/PFOA Testing Flow Chart**

Date: 26 Mar 2013

1) Name of the person who made testing: Judy Li

2) Name of the person in charge of testing: Myra Ma





No. SHAEC1304067909

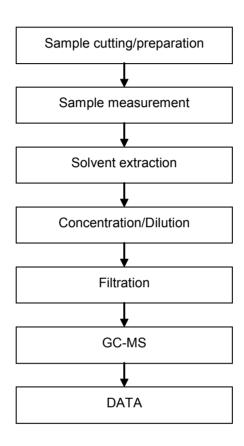
Date: 26 Mar 2013

Page 11 of 15

## **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





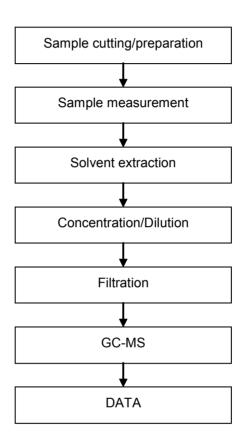
No. SHAEC1304067909

Page 12 of 15

## **PAH Testing Flow Chart**

Date: 26 Mar 2013

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





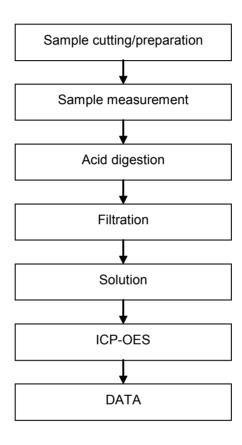
No. SHAEC1304067909

Date: 26 Mar 2013

Page 13 of 15

## **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



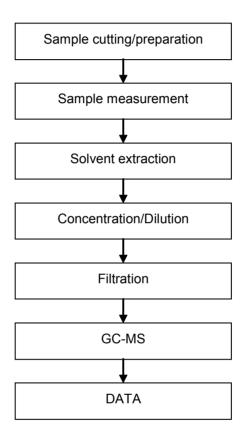


No. SHAEC1304067909

Date: 26 Mar 2013 Page 14 of 15

## **HBCDD Testing Flow Chart**

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





No. SHAEC1304067909

Date: 26 Mar 2013

Page 15 of 15

Sample photo:





SGS authenticate the photo on original report only

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

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