JIANGSU CHANG.IIANG 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 9t.,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.

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)	Limit	Unit	MDL	009
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	009
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))	-	-	◊	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

Test Item(s)	Limit	Unit	MDL	*010*
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^2 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)	Unit	MDL	*009*
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	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.

Test Item(s)	Unit	MDL	009
Antimony (Sb)	mg/kg	10	ND
Phosphorus (P)	mg/kg	20	38

Phthalates

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

Test Item(s)	Unit	MDL	009
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.

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)	Limit	Unit	MDL	009
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.

Test Item(s)	Unit	MDL	009
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	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

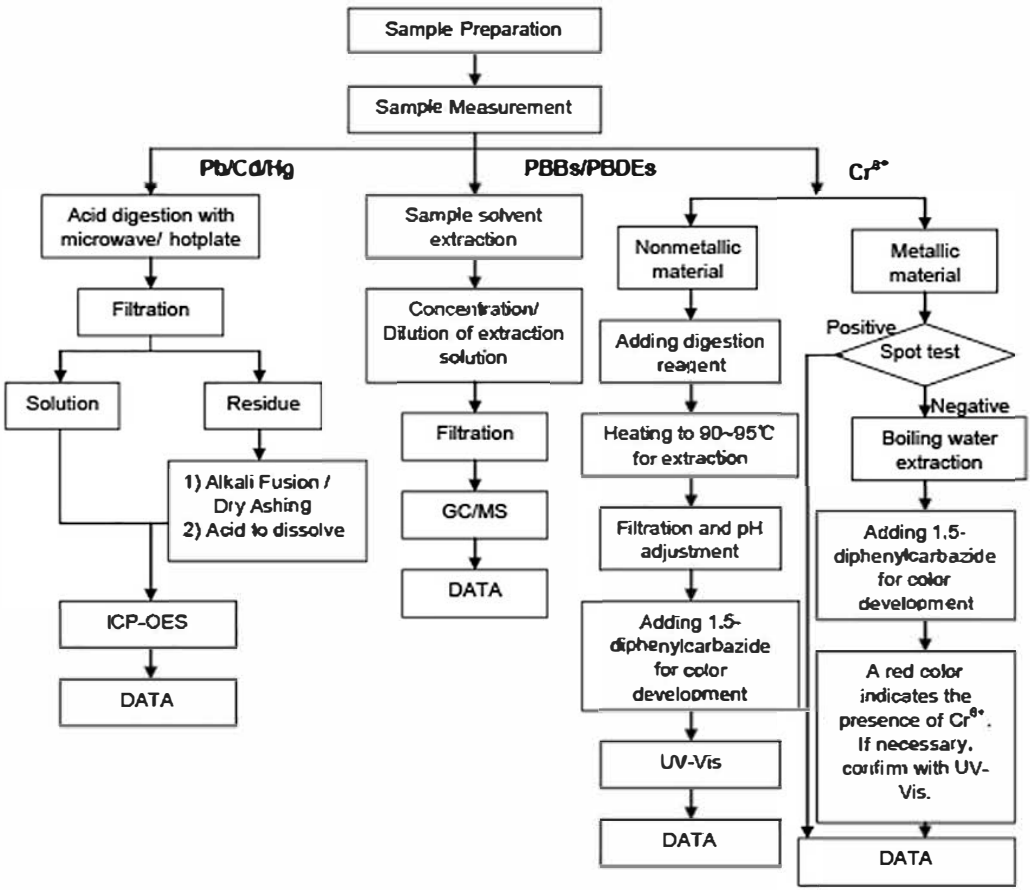
** = In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material which is indented to be put in the mouth by additional specific migration tests of PAH components based on DIN EN 1186-7/EN1 3130 and § 64 LFGB 82 30-1. The conclusion or 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

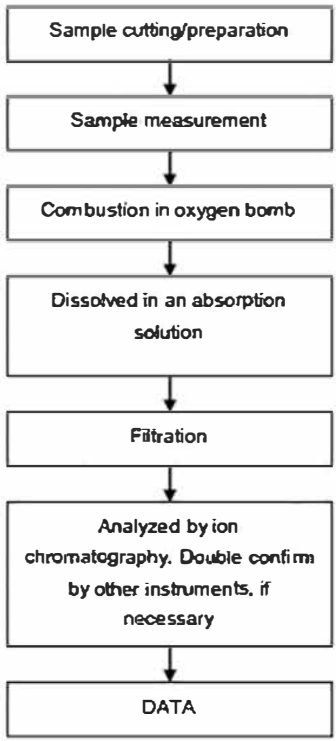
RoHS Testing Flow Chart

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. (Cr^{6+} and PBBs/PBDEs test method excluded)



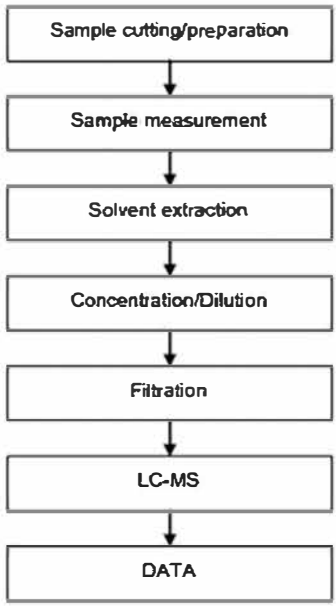
Halogen Testing Flow Chart

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



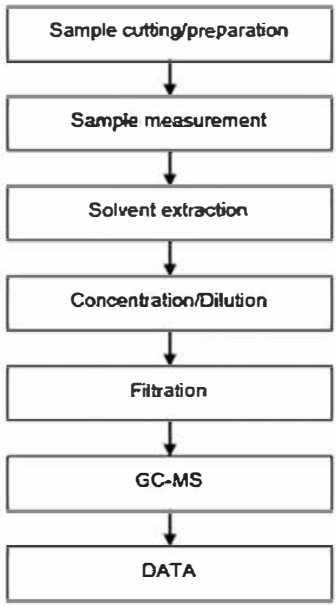
PFOS/PFOA Testing Flow Chart

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



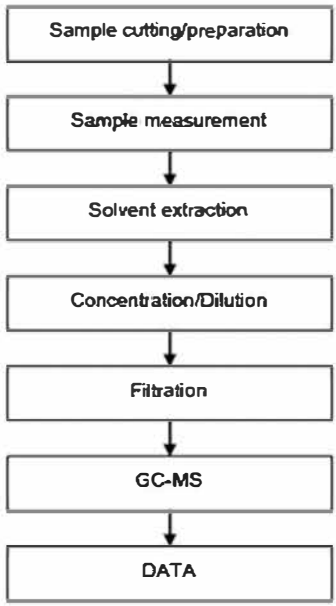
Phthalates Testing Flow Chart

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



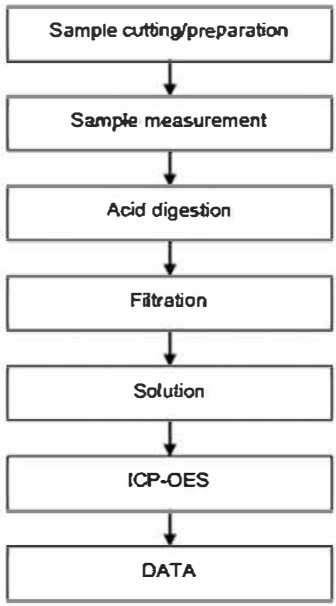
PAH Testing Flow Chart

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



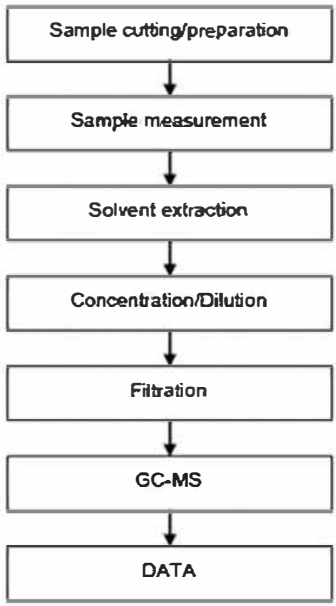
Elements Testing Flow Chart

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: Jessy Huang



Sample photo:

SHA13-040679.009

SHA13-040679.010

SGS authenticate the photo on original report only

*** End of Report ***