

Test Report

No. SHAEC1100514403

Date: 18 Jan 2011

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Heraeus (Zhaoyuan) Metal Materials Co., Ltd/Heraeus Zhaoyuan (Changshu) Electronic Materials Co., Ltd.

No.238 Linglong Road Zhaoyuan Shandong/Huangpujiang Road, Changshu Southeast Economic Development Zone, Changshu, Jiangsu

The following sample(s) was/were submitted and identified on behalf of the clients as : GOLD BONDING WIRE HD

SGS Job No. : SP11-000807 - SH

Date of Sample Received : 12 Jan 2011

Testing Period : 12 Jan 2011 - 18 Jan 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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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA11-005144.002	Golden metal wire

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 : 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	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative
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
Monobromodiphenyl ether	-	mg/kg	5	ND

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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
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) ◇ Spot-test:
 Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;
 The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.
 ◇ Boiling-water-extraction:
 Negative = Absence of CrVI coating; Positive = Presence of CrVI coating
 The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.
 For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) 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>002</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 3050B:1996, analysis was performed by ICP-OES.

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<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Antimony (Sb)	mg/kg	10	ND
Sb ₂ O ₃ ♦	mg/kg	12	ND
Phosphorus (P)	mg/kg	20	ND

Notes :

- (1) ♦ Calculated concentration of Sb₂O₃ is based on the identified Sb

Hexabromocyclododecane (HBCDD)

Test Method : With reference to EPA 8270D: 2007. Analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Hexabromocyclododecane (HBCDD)	mg/kg	10	ND

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>002</u>
Dibutyl Phthalate (DBP)	%	0.003	ND
Benzylbutyl Phthalate (BBP)	%	0.003	ND
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	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

Tetrabromobisphenol A (TBBP-A)

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

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<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Tetrabromobisphenol A (TBBP-A)	mg/kg	10	ND

PFOS (Perfluorooctane Sulfonates)

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

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Perfluorooctane Sulfonates (PFOS) and related Acid, Metal Salt and Amide	mg/kg	10	ND

Notes :

- (1) PFOS Reference Information: Entry 53 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2006/122/EC)
 - (i) May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0.005 % by mass.
 - (ii) May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0.1 % by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than 1µg /m² of the coated material. Please refer to Regulation (EC) No 552/2009 to get more detail information

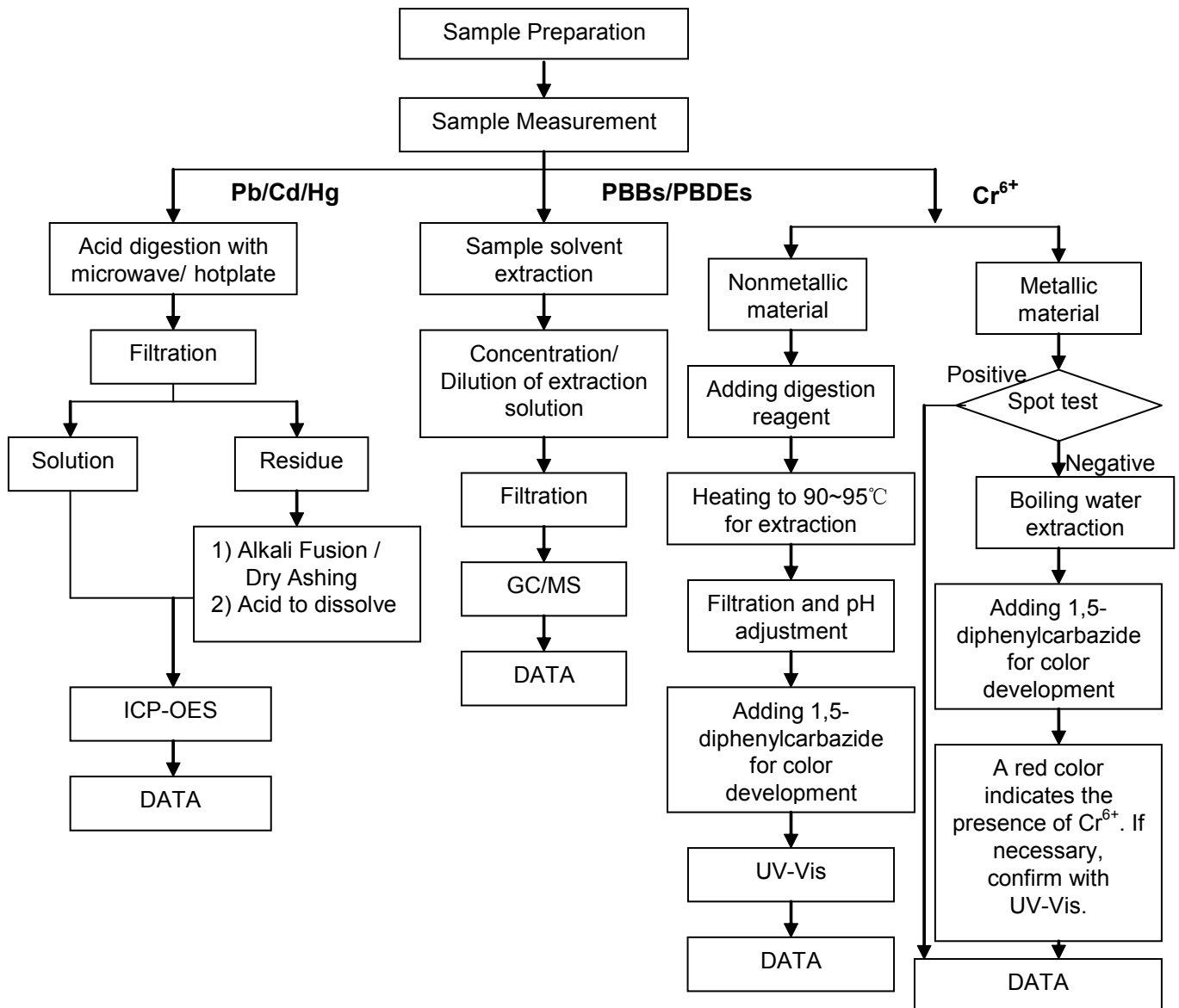
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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Allen Xiao/ Wesley Wei / Andy Zhao /Elim Lin
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/Tracy Yue
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ and PBBs/PBDEs test method excluded)

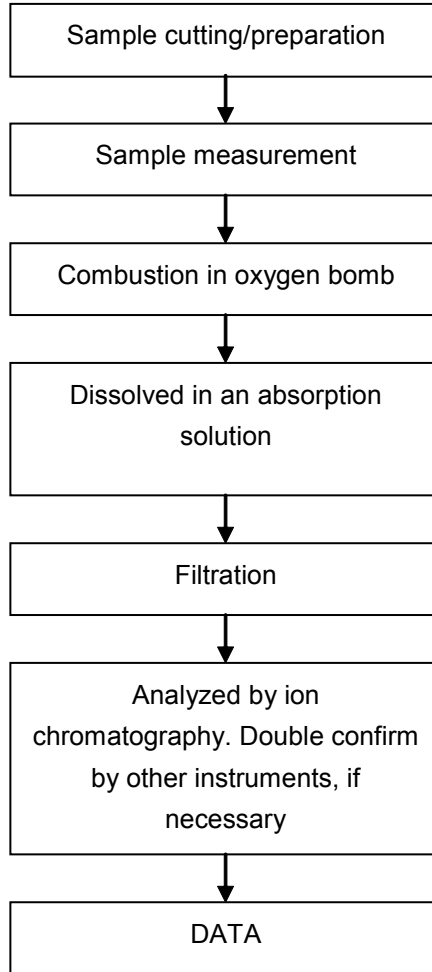


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Halogen Testing Flow Chart

- 1) Name of the person who made testing: Daisy Gong
- 2) Name of the person in charge of testing: Alex Jiang

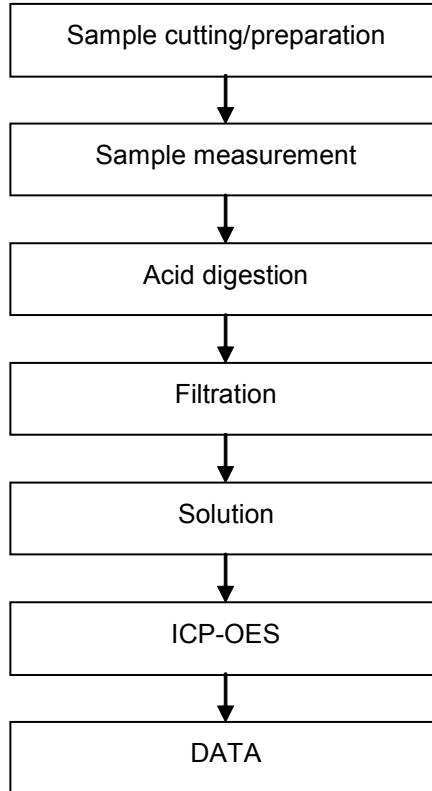


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Elementary Testing Flow Chart

- 1) Name of the person who made testing: Wesley Wei / Allen Xiao
- 2) Name of the person in charge of testing: Jeff Zhang

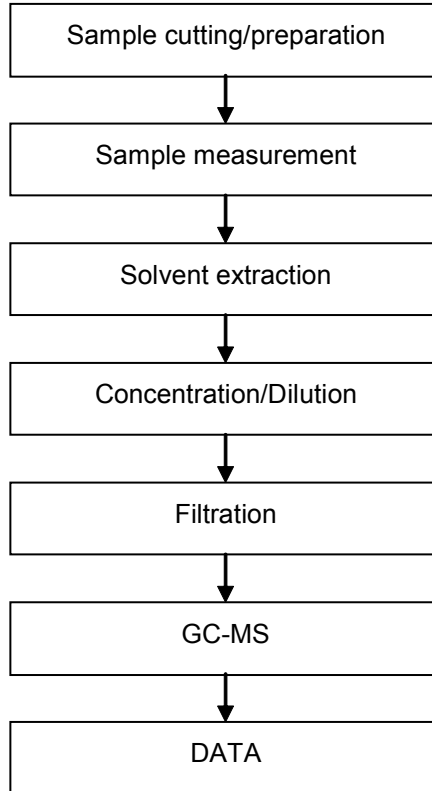


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HBCDD Testing Flow Chart

- 1) Name of the person who made testing: Bill Zhong
- 2) Name of the person in charge of testing: Susan Liu

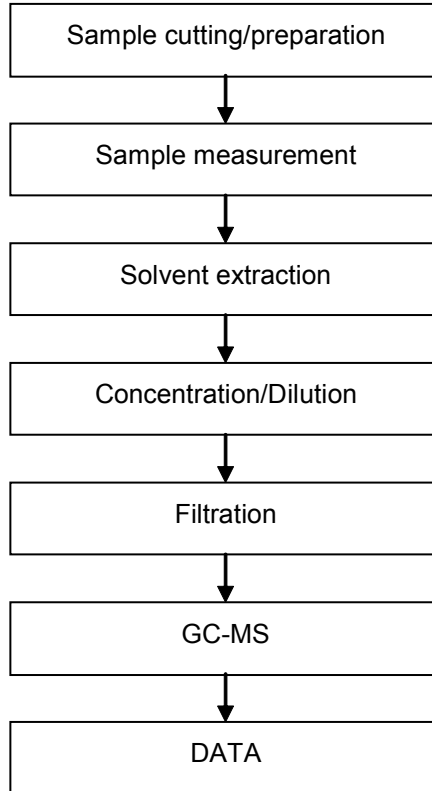


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Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Vickey Gui
- 2) Name of the person in charge of testing: Susan Liu

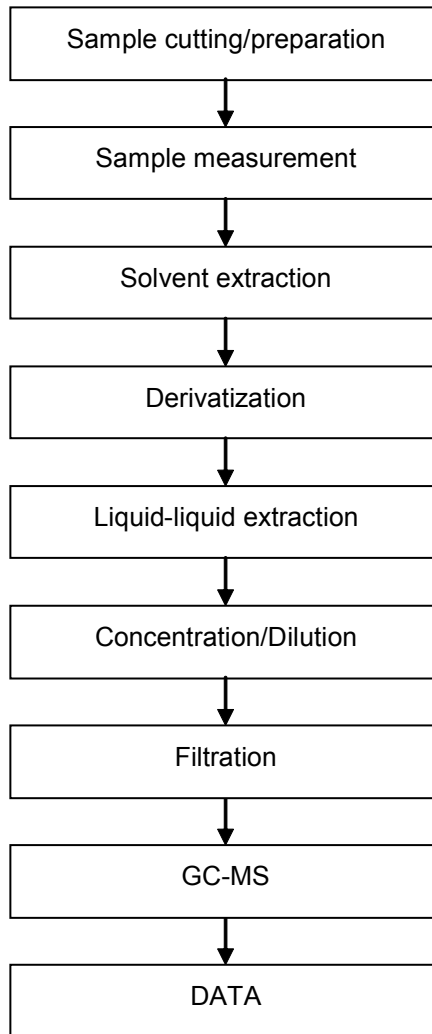


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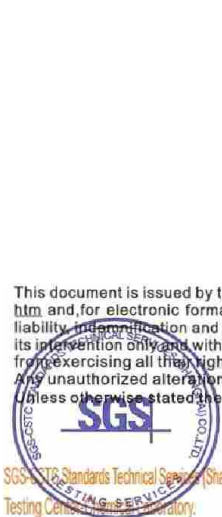


TBBP-A Testing Flow Chart

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

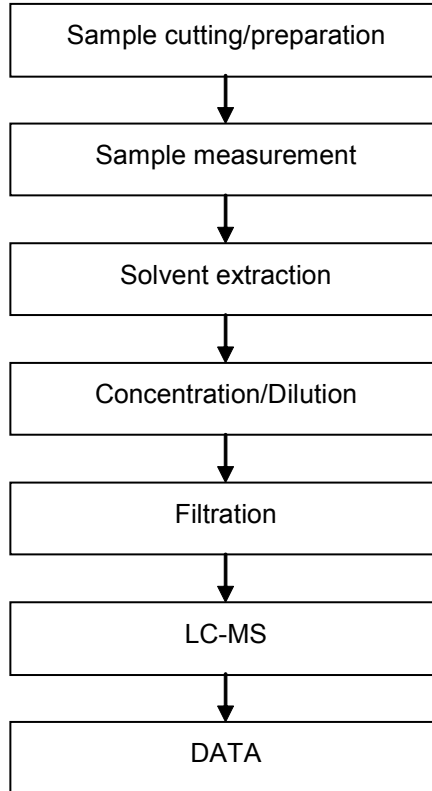


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PFOS Testing Flow Chart

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



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*** End of Report ***

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