

## Test Report

No. SHAEC1514412101

Date: 31 Jul 2015

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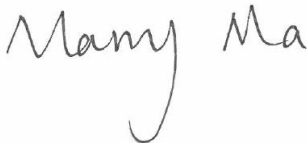
WENZHOU SHUGUANG FUSE CO., LTD

DAXING WEST ROAD, LIUSHI TOWN, YUEQING CITY, ZHEJIANG PROVINCE P.R.CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : High pressure drop type insurance

SGS Job No. : SP15-024479 - SH  
Date of Sample Received : 21 Jul 2015  
Testing Period : 21 Jul 2015 - 24 Jul 2015  
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 Standards Technical Services (Shanghai) Co., Ltd.



Marry Ma  
Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA15-144121.001	Gray solid
SN2	SHA15-144121.002	Gray coating with white base part(Mix all*)
SN3	SHA15-144121.003	Copper metal
SN4	SHA15-144121.004	Gray solid
SN5	SHA15-144121.005	Silvery metal
SN6	SHA15-144121.006	Silvery metal

Remarks :

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

**RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU**

- Test Method :
- (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
  - (2) For sample 002,004:With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.  
For sample 001: With reference to IEC 62321-5:2013, determination of Lead by AAS.
  - (3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
  - (4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.
  - (5) With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	001	002	004
Cadmium (Cd)	100	mg/kg	2	ND	ND	11
Lead (Pb)	1000	mg/kg	2	15	15	83
Mercury (Hg)	1000	mg/kg	2	ND	ND	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	2	ND	4	ND
Sum of PBBs	1000	mg/kg	-		ND	ND
Monobromobiphenyl	-	mg/kg	5		ND	ND
Dibromobiphenyl	-	mg/kg	5		ND	ND
Tribromobiphenyl	-	mg/kg	5		ND	ND
Tetrabromobiphenyl	-	mg/kg	5		ND	ND
Pentabromobiphenyl	-	mg/kg	5		ND	ND
Hexabromobiphenyl	-	mg/kg	5		ND	ND



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Test Item(s)	Limit	Unit	MDL	001	002	004
Heptabromobiphenyl	-	mg/kg	5		ND	ND
Octabromobiphenyl	-	mg/kg	5		ND	ND
Nonabromobiphenyl	-	mg/kg	5		ND	ND
Decabromobiphenyl	-	mg/kg	5		ND	ND
Sum of PBDEs	1000	mg/kg	-		ND	12
Monobromodiphenyl ether	-	mg/kg	5		ND	ND
Dibromodiphenyl ether	-	mg/kg	5		ND	ND
Tribromodiphenyl ether	-	mg/kg	5		ND	ND
Tetrabromodiphenyl ether	-	mg/kg	5		ND	ND
Pentabromodiphenyl ether	-	mg/kg	5		ND	ND
Hexabromodiphenyl ether	-	mg/kg	5		ND	ND
Heptabromodiphenyl ether	-	mg/kg	5		ND	ND
Octabromodiphenyl ether	-	mg/kg	5		ND	ND
Nonabromodiphenyl ether	-	mg/kg	5		ND	ND
Decabromodiphenyl ether	-	mg/kg	5		ND	12

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

**RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU**

Test Method : (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.  
 (2) With reference to IEC 62321-5:2013, determination of Lead by AAS.  
 (3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.  
 (4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.

Test Item(s)	Limit	Unit	MDL	003	005	006
Cadmium (Cd)	100	mg/kg	2	6	ND	ND
Lead (Pb)	1000	mg/kg	2	2096#	ND	ND
Mercury (Hg)	1000	mg/kg	2	ND	ND	ND
Hexavalent Chromium (Cr(VI))	-	-	◇	Negative	Negative	Negative

Notes :

(1)The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.  
 (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.)



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◇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.

(3) #=Exceed the limit

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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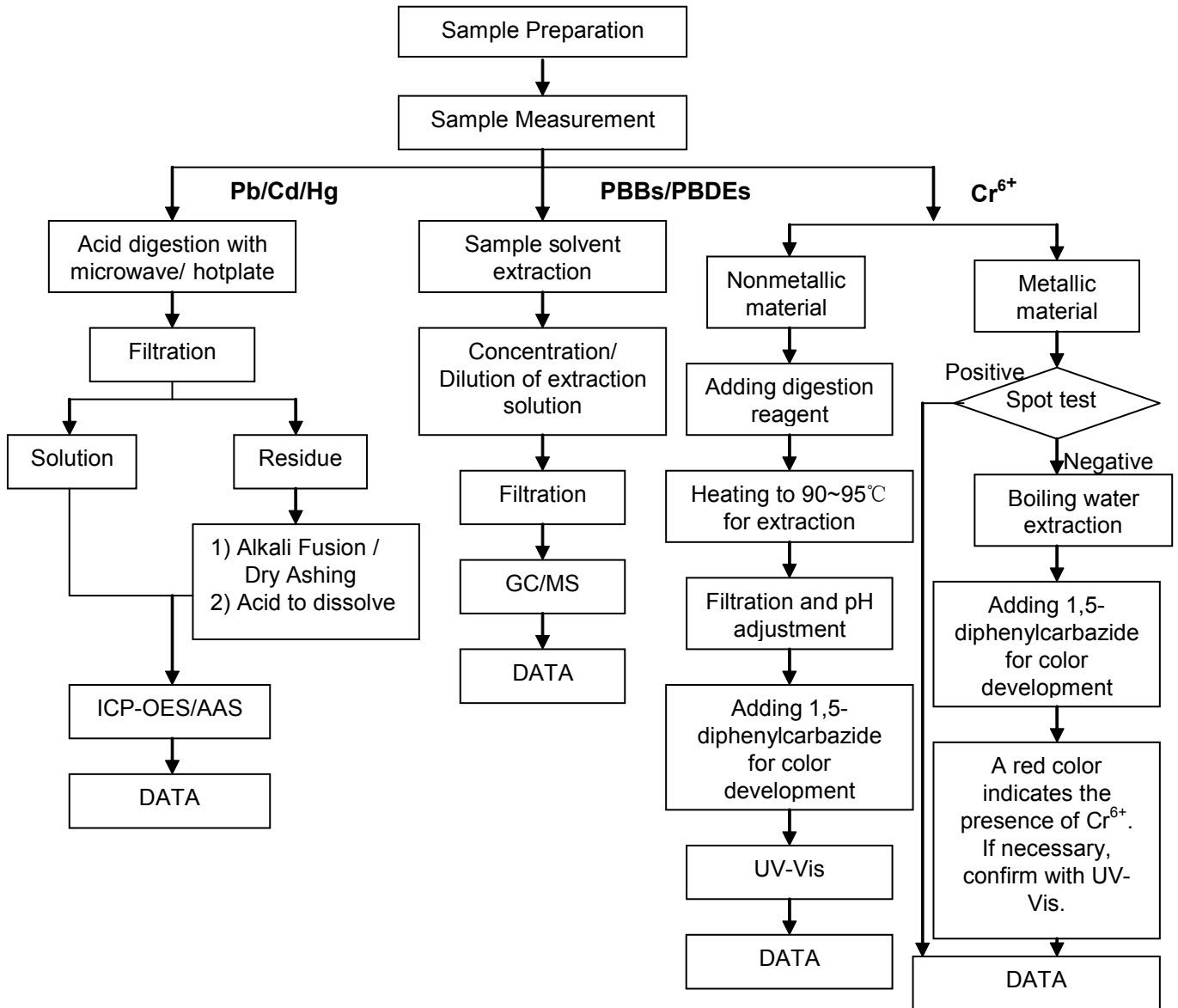
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RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bob Zhang/Gary Xu/Zengzhen Zhu/Sunny Qin
- 2) Name of the person in charge of testing: Jan Shi/Summer Jin/Jessy Huang/Stone Chen
- 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)



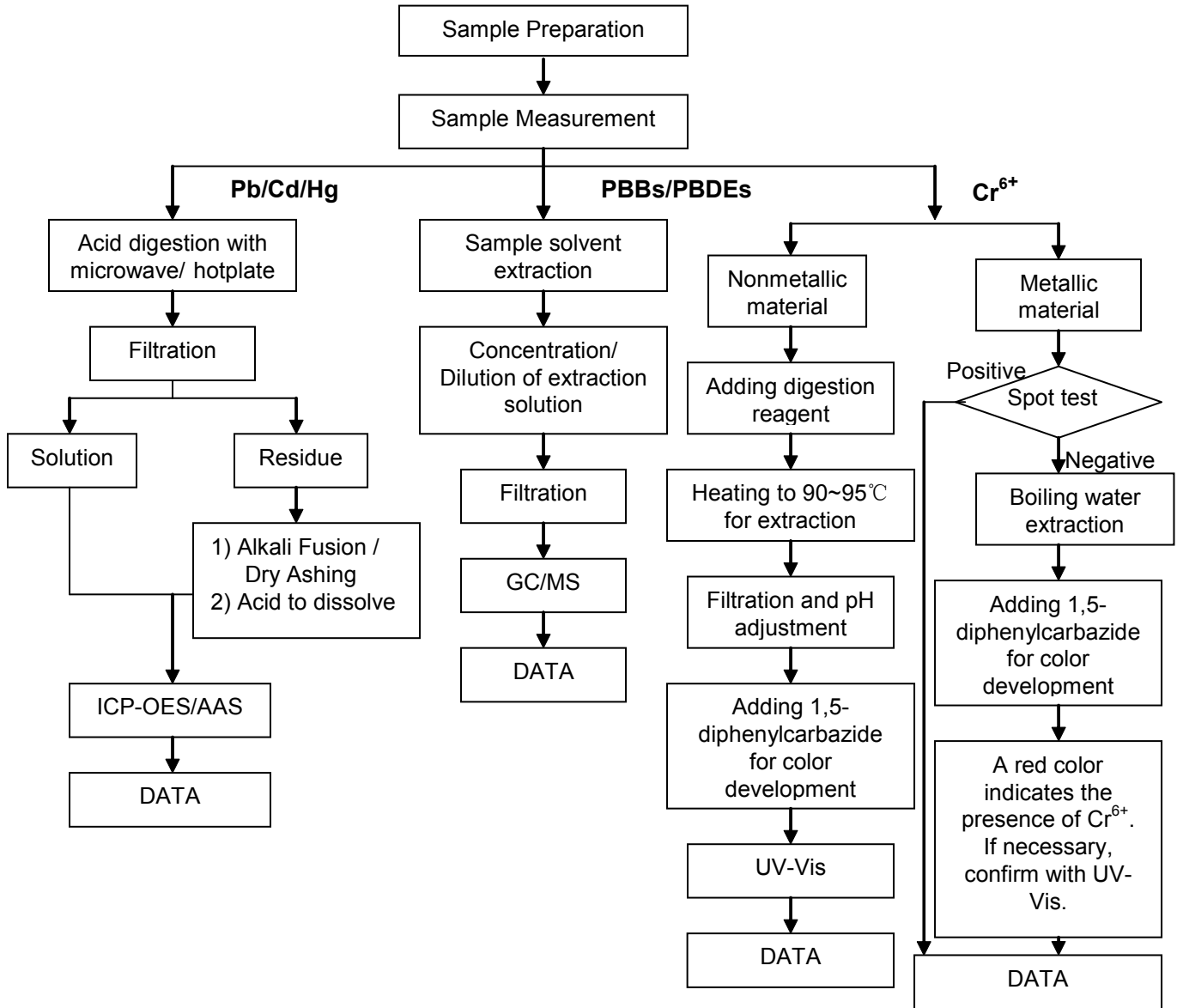
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Sample 001 RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bob Zhang/Gary Xu/Zengzhen Zhu/Sunny Qin
- 2) Name of the person in charge of testing: Jan Shi/Summer Jin/Jessy Huang/Stone Chen



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Sample photo:



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