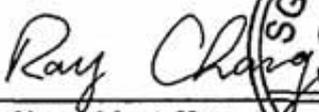




The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description : Au ALLOY BONDING WIRE  
Style/Item No. :  
Sample Receiving Date : 2010/11/25  
Testing Period : 2010/11/25 TO 2010/12/03

=====  
Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.  
Test Method : With reference to IEC 62321: 2008  
Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products.  
(1) Determination of Cadmium by ICP-AES.  
(2) Determination of Lead by ICP-AES.  
(3) Determination of Mercury by ICP-AES.  
(4) Determination of Hexavalent Chromium by Spot test / boiling water extraction Method, confirm by UV-Vis.  
(5) Determination of Hexavalent Chromium by UV/Vis Spectrometry.  
(6) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV-Vis  
(7) With reference to BS EN ISO 3613:2001 for Hexavalent Chromium. Analysis was performed by UV-VIS Spectrometry.  
(8) Determination of PBB and PBDE by GC/MS.  
Test Result(s) : Please refer to next page(s).

  
Ray Chang / Asst. Manager  
Signed for and on behalf of  
SGS Taiwan Limited





# Test Report

No. : KA/2010/B1745

Date : 2010/12/03

Page : 2 of 6



Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by Spot test / boiling water extraction	(4)	Negative	See Note 4
Hexavalent Chromium Cr(VI) by alkaline extraction	(5)	n.d.	2
Hexavalent Chromium Cr(VI)	(6)	n.d.	2
Hexavalent Chromium Cr(VI)	(7)	n.d.	See Note 5
<b>Sum of PBBs</b>	(8)	n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
<b>Sum of PBDEs</b>		n.d.	-
Monobromodiphenyl ether		n.d.	5
Dibromodiphenyl ether		n.d.	5
Tribromodiphenyl ether		n.d.	5
Tetrabromodiphenyl ether		n.d.	5
Pentabromodiphenyl ether		n.d.	5
Hexabromodiphenyl ether		n.d.	5
Heptabromodiphenyl ether		n.d.	5
Octabromodiphenyl ether		n.d.	5
Nonabromodiphenyl ether	n.d.	5	
Decabromodiphenyl ether	n.d.	5	

## TEST PART DESCRIPTION:

NO.1 : GOLDE Au ALLOY BONDING WIRE

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SGS Taiwan Ltd  
 台灣檢驗科技股份有限公司

No. 81, Kai-Fu Road, Nanzh Expert Processing Zone, Keelung, Taiwan /  
 1 + 886 (0)7301 2121

高雄中崙神和出口區開發路81號  
 1 + 886 (0)73010967  
[www.tw.sgs.com](http://www.tw.sgs.com)

Member of the SGS Group



Note : 1. mg/kg = ppm ; 0.1wt% = 1000ppm

2. n.d. = Not Detected

3. MDL = Method Detection Limit

4. Spot-test:

Negative = Absence of Cr(VI) coating / surface layer,

Positive = Presence of Cr(VI) coating / surface layer;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)

Boiling-water-extraction:

Negative = Absence of Cr(VI) coating / surface layer.

Positive = Presence of Cr(VI) coating / surface layer;

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.

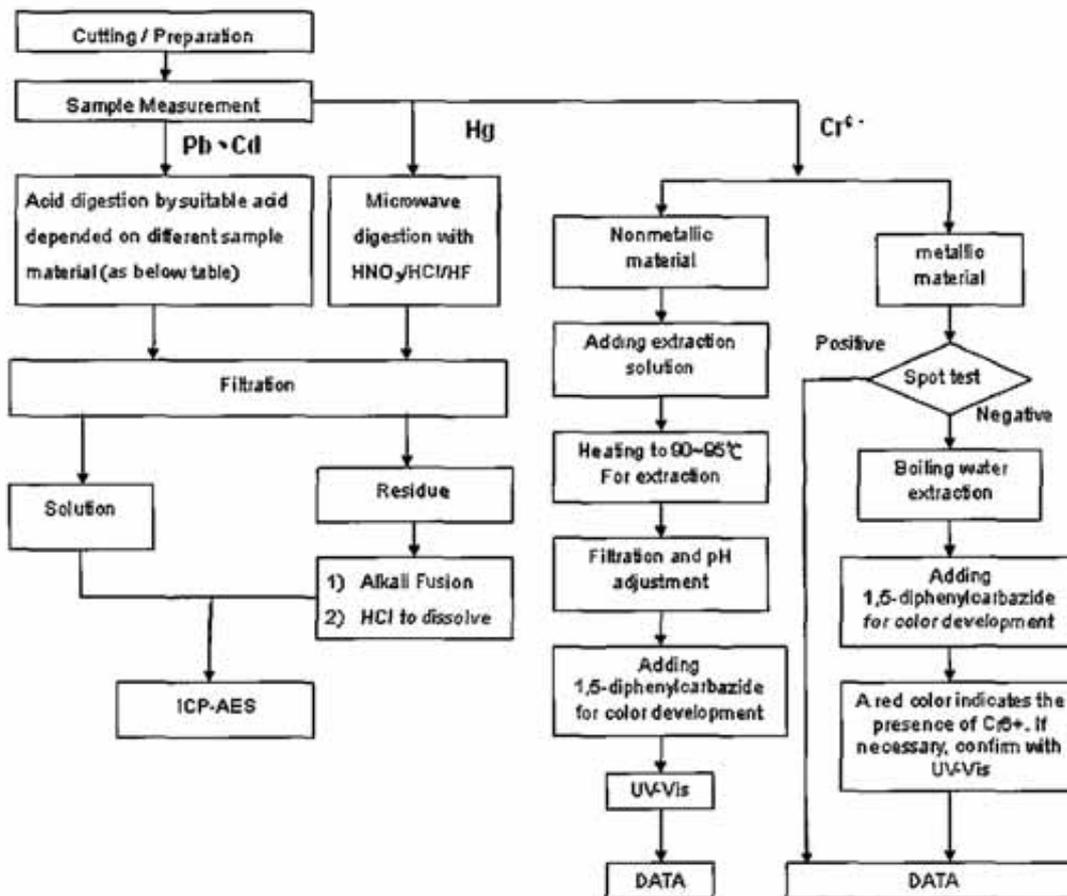
5. Method Detection Limit = 0.02 µg/cm<sup>2</sup> ;

Based upon the customer's requirement and information to calculate the coating thickness, the unit of the test result was conversed into mg/kg.

6. "-" = Not Regulated



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded)
- 2) Name of the person who made measurement: Alex Chang
- 3) Name of the person in charge of measurement: Ray Chang



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Any acid to total digestion

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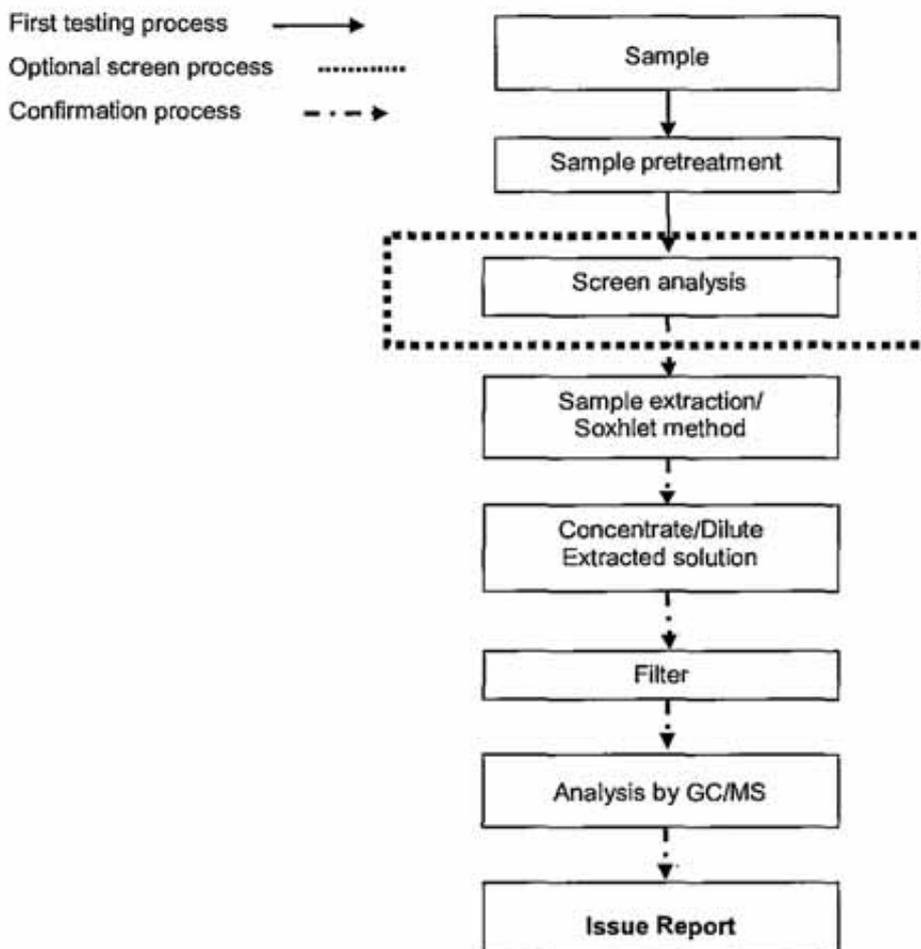
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### PBB/PBDE analytical FLOW CHART

1) Name of the person who made measurement: Anson Tsao

2) Name of the person in charge of measurement: Ray Chang





\*\* End of Report \*\*

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