



Test Report

No. : KA/2008/C1764

Date : 2009/01/05

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

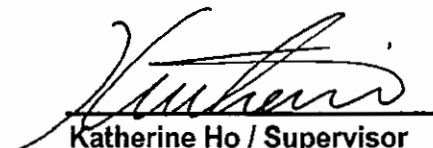
Sample Description : AU ALLOY BUMPING WIRE
 Style/Item No. : GBC TYPE
 Date Reported : 2009/01/05
 Sample Receiving Date : 2008/12/19
 Testing Period : 2008/12/19 TO 2008/12/25

Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : With reference to IEC 62321/2nd CDV (111/95/CDV) 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 for metallic samples by Spot test / boiling water extraction Method.
- (5) Determination of PBB and PBDE by GC/MS.

Test Result(s) : Please refer to next page(s).


 Katherine Ho / Supervisor
 Signed for and on behalf of
 SGS Taiwan Limited

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

Test Item (s):	Method (Refer to)	Result	MDL	RoHS Limit
		No.1		
Cadmium (Cd)	(1)	n.d.	2	100
Lead (Pb)	(2)	n.d.	2	1000
Mercury (Hg)	(3)	n.d.	2	1000
Hexavalent Chromium Cr(VI) by Spot test / boiling water extraction	(4)	Negative	See Note 4	#
Sum of PBBs	(5)	n.d.	-	1000
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	-
Sum of PBDEs		n.d.	-	1000
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 : GOLD AU ALLOY BUMPING WIRE

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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 cm² sample surface area.

5. # = Positive indicates the presence of Cr(VI) on the tested areas

and result be regarded as not comply with RoHS requirement.

Negative indicates the absence of Cr(VI) on the tested areas and result be regarded as comply with RoHS requirement.

6. The exemption of DecaBDE in polymeric application according 2005/717/EC was

overruled by the European Court of Justice by its decision of 01.04.2008. Subsequently DecaBDE will be included in the sum of PBDE after 01.07.2008

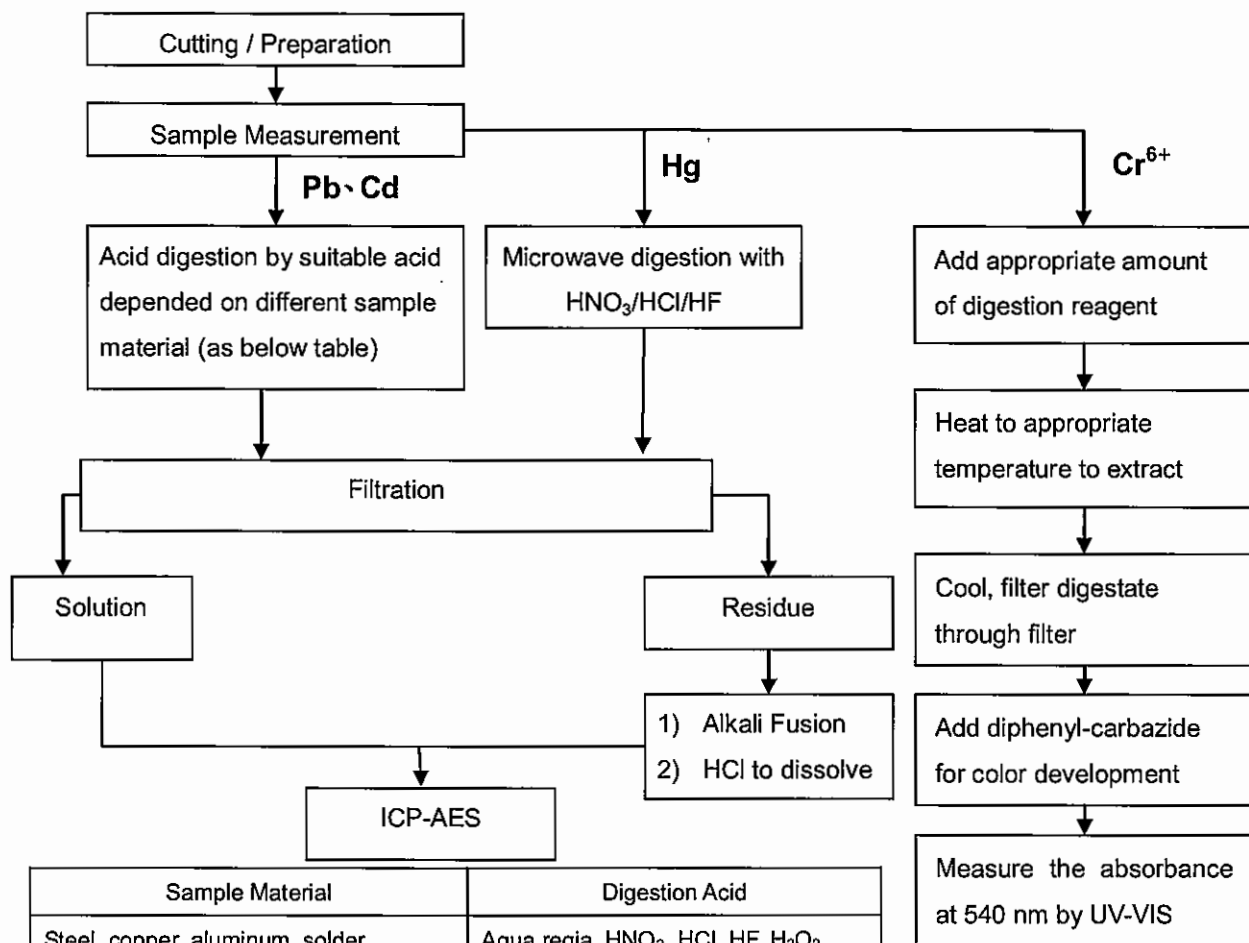
7. "-" = Not Regulated

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- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)
- 2) Name of the person who made measurement: Hungming Li
- 3) Name of the person in charge of measurement: Ray Chang



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

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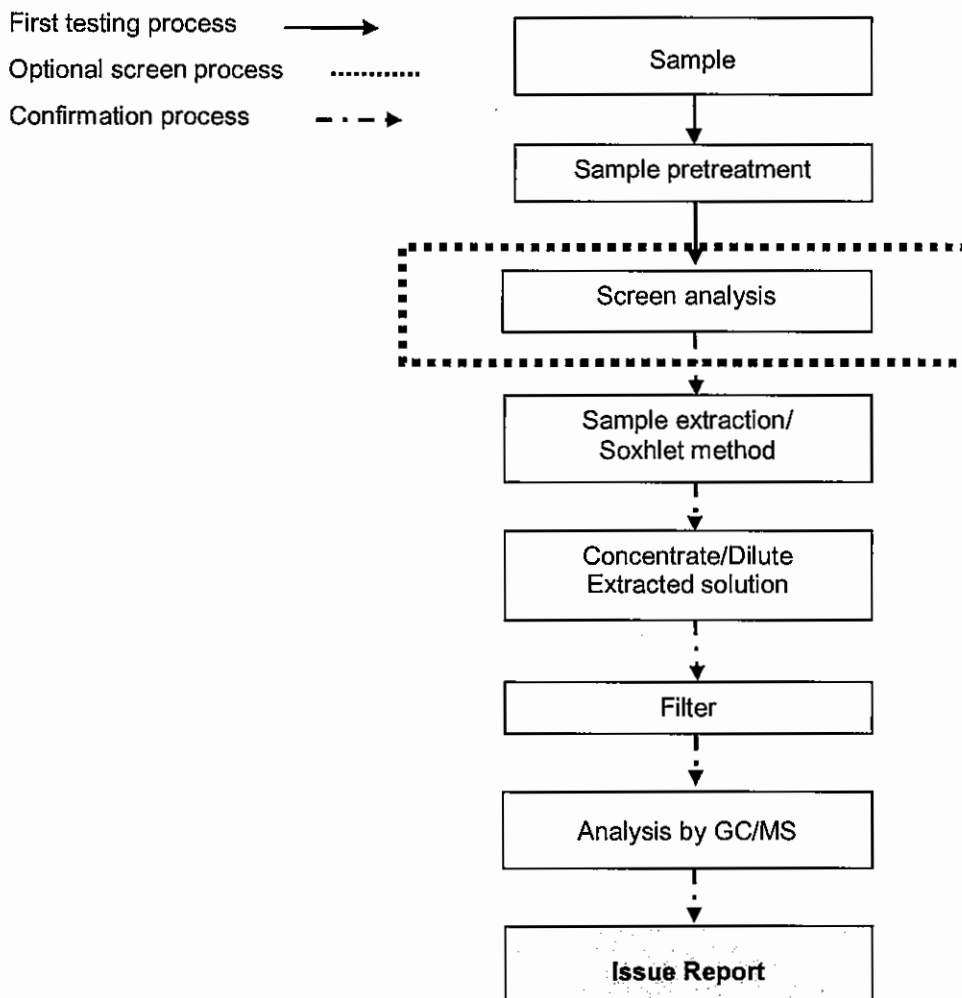
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PBB/PBDE analytical FLOW CHART

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

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



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** End of Report **

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