

Test Report

No. CANEC1501460201

Date: 30 Jan 2015

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DONG GUAN HAN HUA METAL PRODUCTS CO.,LTD.
HUI HUA METAL WIRE (DONGGUAN)CO.,LTD.
XINIUPO INDUSTRIAL AREA,DALANG TOWN,DONG GUAN CITY,GUANG DONG PROVINCE,CHINA.

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

SGS Job No. : CP15-004329 - SZ
Date of Sample Received : 26 Jan 2015
Testing Period : 26 Jan 2015 - 30 Jan 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).
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch



Alkene_Liang
Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN15-014602.001	Silvery plating on metal
SN2	CAN15-014602.002	Silvery plated metal

Remarks :

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

RoHS 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 ICP-OES.
 - (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
 - (4)Determination of Cadmium and Lead by ICP-OES after application of modified surface etching digestion based on IEC62321-5:2013
 - (5)Determination of Mercury by ICP-OES after application of modified surface etching digestion based on IEC 62321-4:2013
 - (6)With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.
 - (7)With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>	<u>002</u>
Cadmium (Cd)	100	mg/kg	2		ND
Lead (Pb)	1000	mg/kg	2		ND
Mercury (Hg)	1000	mg/kg	2		ND
Cadmium (Cd)	100	mg/kg	10	ND	
Lead (Pb)	1000	mg/kg	10	57	
Mercury (Hg)	1000	mg/kg	10	ND	
Hexavalent Chromium (CrVI)	-	-	◇	Negative	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



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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>	<u>002</u>
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
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 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.

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.

Elementary Analysis

Test Method : With reference to US EPA Method 3050B:1996, analysis was performed by ICP-OES.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Arsenic (As)	mg/kg	10	ND
Antimony (Sb)	mg/kg	10	212
Beryllium (Be)	mg/kg	5	ND



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Phthalate

Test Method : Determination of phthalates by GC-MS based on EN 14372:2004.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Dibutyl Phthalate (DBP)	84-74-2	%(w/w)	0.003	ND
Benzylbutyl Phthalate (BBP)	85-68-7	%(w/w)	0.003	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	117-81-7	%(w/w)	0.003	ND
Diisobutyl Phthalate (DIBP)	84-69-5	%(w/w)	0.003	ND

Notes :

Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC and the latest amending directive:

(1) Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), and Dibutyl phthalate (DBP) are considered as a priority for risk evaluation and substance restriction.

(2) Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl Phthalates (DIBP) have been adopted in the draft of Commission Delegated Directive amending Annex II to Directive 2011/65/EU of the European Parliament, and the regulatory limit of each restricted substances should be 0.1%.



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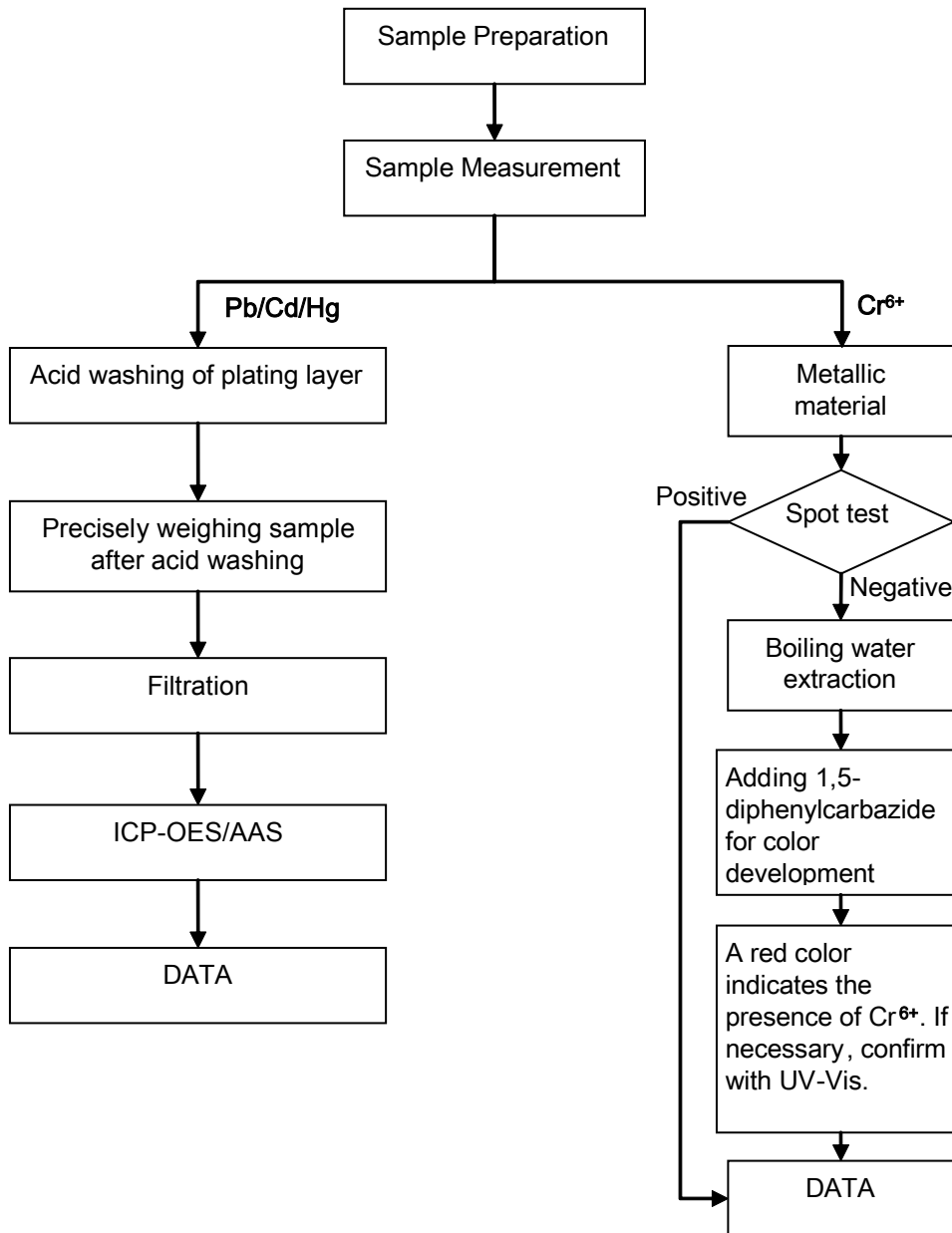
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Plating Pb/Cd/Hg/Cr⁶⁺ Testing Flow Chart

- 1) Name of the person who made testing: Bruce Xiao
- 2) Name of the person in charge of testing: Bella Wang



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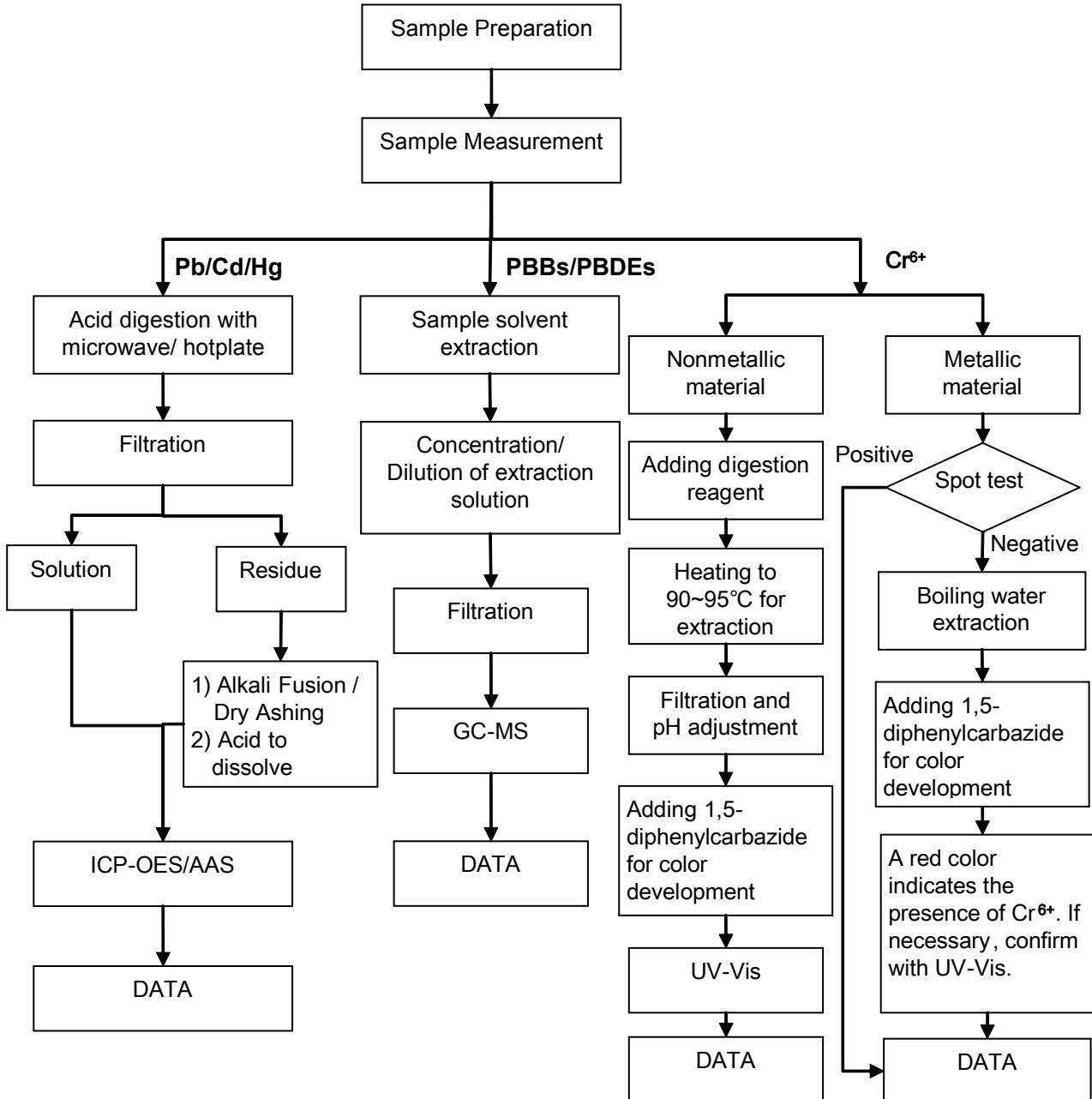
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RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bruce Xiao / Sunny Hu
- 2) Name of the person in charge of testing: Bella Wang / Cutey Yu
- 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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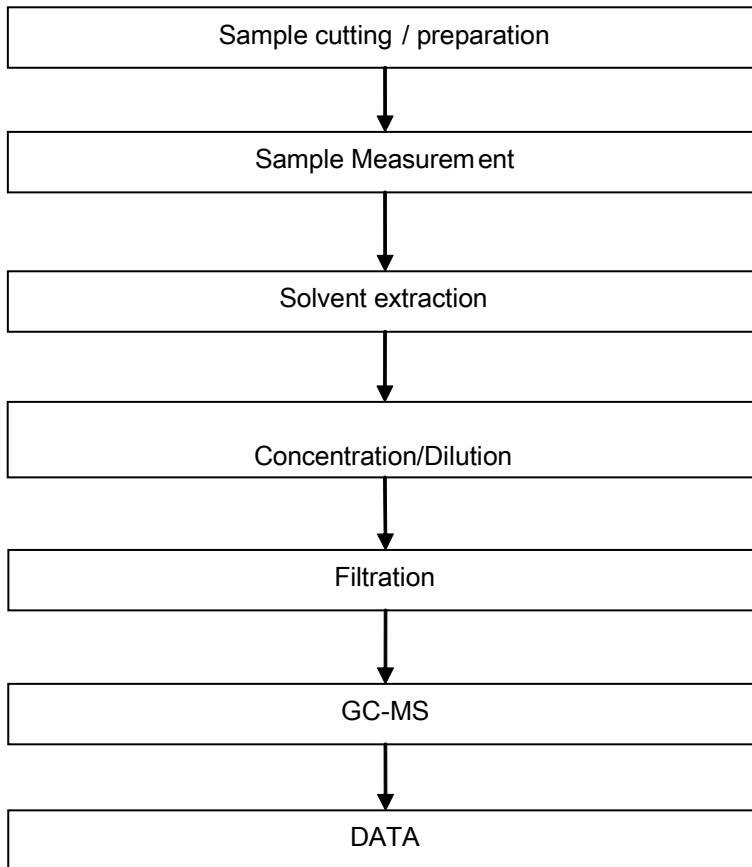
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Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Sunny Hu
- 2) Name of the person in charge of testing: Cutey Yu



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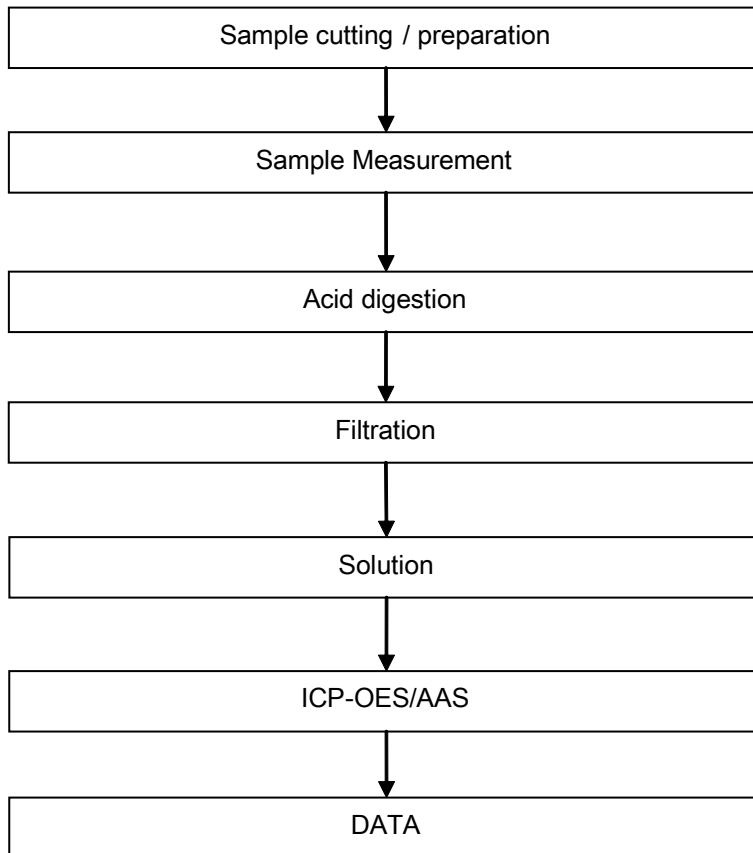
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Elementary Testing Flow Chart

- 1) Name of the person who made testing : Bruce Xiao
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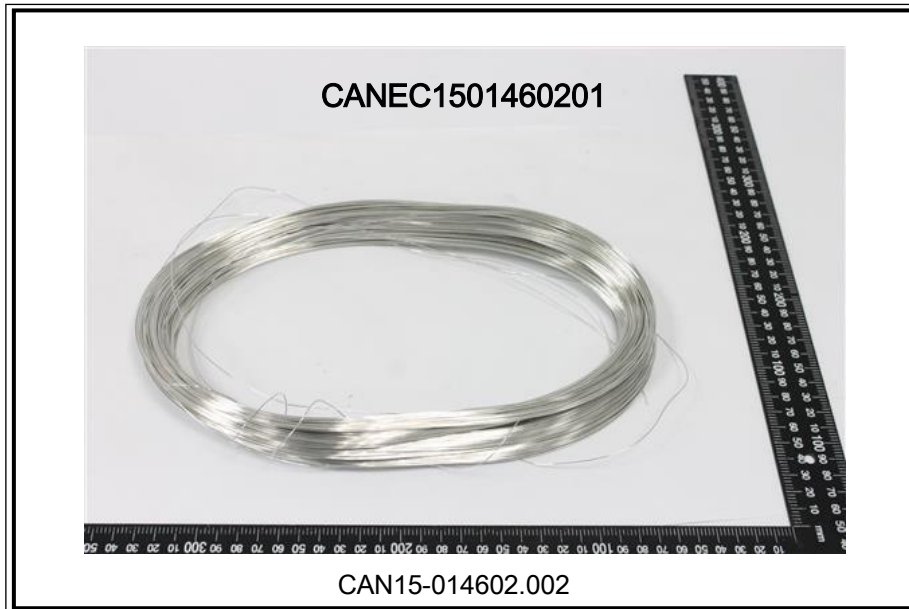


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