ICP Test Report Certification Packet

Company name: Littelfuse, Inc.

Product Series: T 400 - 300V CLASS T BLOCK 400A 1 POLE

Product #: T 400A - LFT304001CS

Issue Date: September 14, 2011

It is hereby certified by Littelfuse, Inc. that there is neither RoHS (EU Directive 2002/95/EC)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes.
In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by: KRISTEEN BACILA

<Global EHS Engineer>

(1) Parts, sub-materials and unit parts

This document covers the T 400A RoHS-Compliant series products manufactured by Littelfuse, Inc.

＜ Raw Materials Used

Please see Table 1

(2) The ICP data on all measurable substances

Please see appropriate pages as identifed in Table 1

Remarks :

Table 1: List of Raw Materials covered by this report

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	NA	FR-4	3-13
2	NA	Terminal Block - Aluminum	14-18
3	NA	Screw - Aluminum	14-18
4	NA	Hex bolt - Steel	19-23
5	NA	Hex Nut - Steel	19-23
6	NA	Hexagon Bolt - Steel	19-23
7	NA	Spring washers - Steel	19-23
8	NA	Epoxy	24-29
9	NA	Plating - Zinc	30-33
10	NA	Plating - Tin	34-37

Test Report

No. CANEC1102810201 Date: 27 Jul 2011 Page 1 of 11

ZHUHAI SEZ HARBOUR INDUSTRIAL LAMINATE LTD
4,XINGGUO STREET,NANKENG INDUSTRIAL ZONE,ZHUHAI CITY
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as :
FR-4(Z)

SGS Job No.	:	13260645 - SZ
SGS Internal Reference No.	:	3.1
Date of Sample Received	:	20 Jul 2011
Testing Period	:	20 Jul 2011 - 27 Jul 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	:	A: Based on the performed tests on submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) 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 Ltd.

Almay Gao
Approved Signatory

198 Kezhu Road,Scientech Park Guangzhou Economic & Technology Development District,Guangzhou,China 510663 t (86-20) 82155555 f (86-20) 82075113 www.cn.sgs.com
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e sgs.china@sgs.com

Test Results:

ID for specimen 1 : CAN11-028102.001
Description for specimen 1 : Lt-grey sheet w/ red printing

A: RoHS Directive 2011/65/EU

Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium (Cd)	mg/kg	IEC 62321:2008, ICP-OES	N.D.	2	100
Lead (Pb)	mg/kg	IEC 62321:2008, ICP-OES	5	2	1000
Mercury (Hg)	mg/kg	IEC 62321:2008, ICP-OES	N.D.	2	1000
Hexavalent Chromium (CrVI) by alkaline extraction	mg/kg	IEC 62321:2008, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	-	N.D.	-	1000
Monobromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Dibromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Tribromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Tetrabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Pentabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Hexabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Heptabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Octabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Nonabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Decabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Sum of PBDEs	mg/kg	-	N.D.	-	1000
Monobromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Dibromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Tribromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Tetrabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Pentabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Hexabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Heptabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Octabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Nonabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Decabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	

Note:
1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. "-" = Not regulated

B: Phthalate(s)

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Dimethyl Phthalate (DMP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diethyl Phthalate (DEP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Dibutyl Phthalate (DBP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Benzylbutyl Phthalate (BBP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Di-(2-ethylhexyl) Phthalate (DEHP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diisononyl Phthalate (DINP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.01
Di-n-octyl Phthalate (DNOP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diisodecyl Phthalate (DIDP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.01
Diiso butyl Phthalate (DIBP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Dinonyl Phthalate (DNP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diisooctyl Phthalate (DIOP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.01
Dipropyl Phthalate (DPrP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Dicyclohexyl Phthalate (DCHP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Dipentyl Phthalate (DPP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Dibenzyl Phthalate (DBzP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diphenyl Phthalate (DPhP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Di-n-hexyl phthalate (DNHP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003

Note :
1. mg/kg = ppm; 0.1% = 1000ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

For reference:
Entry 51/52 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC):
For DBP, BBP, DEHP
(1)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.
(2) 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.
For DINP, DNOP, DIDP
(1) 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 which can be placed in the mouth by children.
(2) Such 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.

C: PFOS (Perfluorooctane sulfonates)

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Perfluorooctane sulfonates (PFOS) PFOS Acid PFOS Metal Salt PFOS Amide	mg/kg	EPA 3550C: 2007, LC-MS	N.D.	10

Note:
1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

For reference: commission regulation (EU) No 757/2010 amending regulation (EC) No 850/2004:
(1) For the purposes of this entry, Article 4(1) (b) shall apply to concentrations of PFOS equal to or below 10 mg/kg (0,001 % by weight) when it occurs in substances or in preparations.
(2) For the purposes of this entry, Article 4(1) (b) shall apply to concentrations of PFOS in semi-finished products or articles, or parts thereof, if the concentration of PFOS is lower than 0,1 % by weight calculated with reference to the mass of structurally or micro-structurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is lower than 1µg /m² of the coated material.

D: TBBP-A (Tetrabromobisphenol A)

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Tetrabromobisphenol A (TBBP-A)	mg/kg	EPA 3550C: 2007, GC-MS&LC-MS	N.D.	10

Note:
1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

E: PAHs (Polynuclear Aromatic Hydrocarbons)

Test Item(s)	Unit	Test Method	Result	MDL
Naphthalene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Acenaphthylene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Acenaphthene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Fluorene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Phenanthrene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Anthracene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Fluoranthene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Pyrene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2

Test Item(s)	Unit	Test Method	Result	MDL
Benz(a)anthracene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Chrysene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(b)fluoranthene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(k)fluoranthene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(a)pyrene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Indeno(1,2,3-cd)pyrene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Dibenzo(a,h)anthracene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(g,h,i)perylene	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Sum of 16 PAHs acc. US EPA	mg/kg	-	N.D.	-

Note:
1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

ZEK 01.2-08 : Restraining maximum values for products

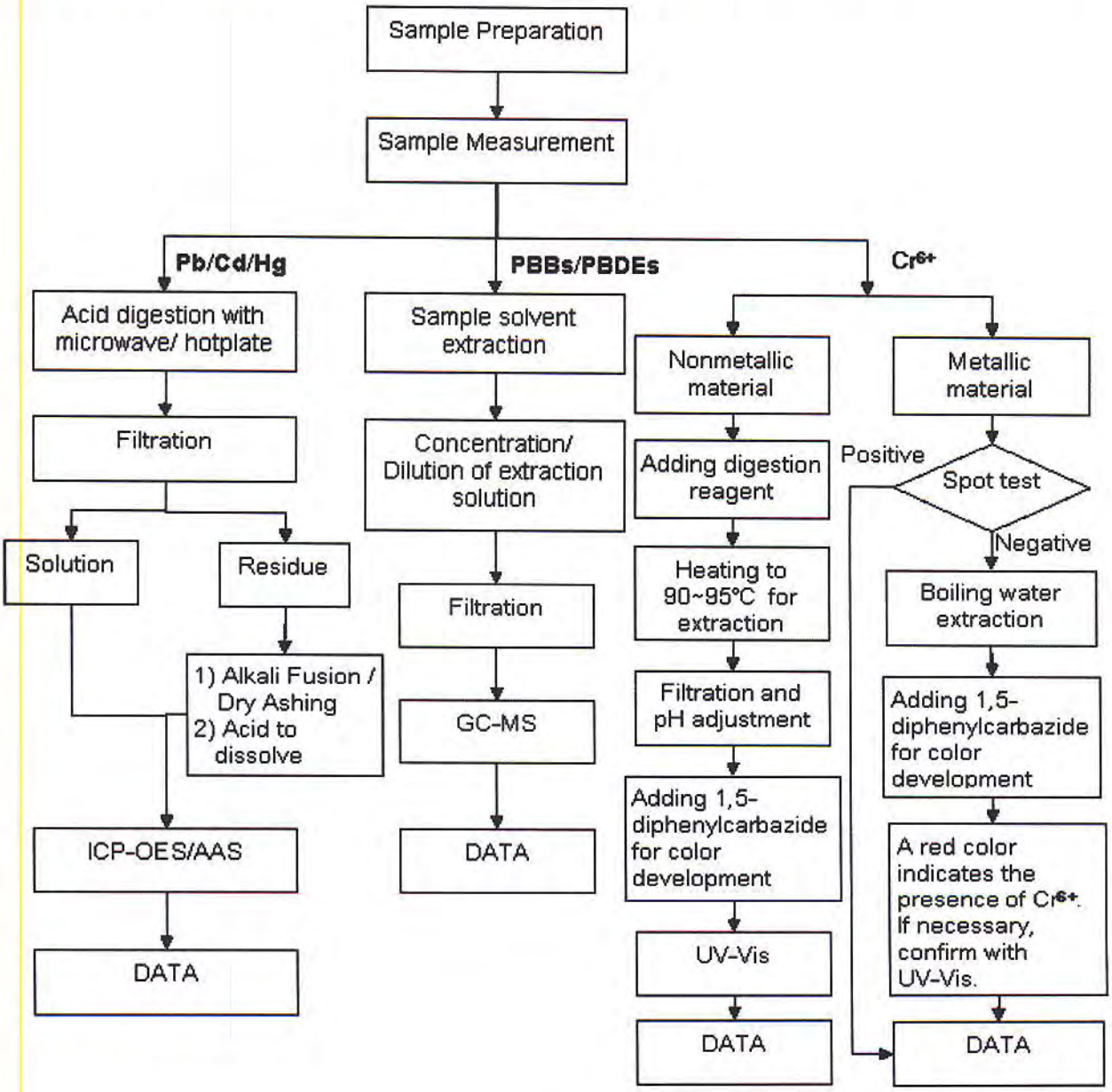
Parameter	Category 1 Material indented to be put in the mouth or material for toys with normal skin contact for children aged < 36 months	Category 2 Materials those are not included in Category 1, with predictable contact with the skin longer than 30 s. (long-term skin contact).	Category 3 Materials those are not included in Category 1 or 2, with predictable skin contact up to 30 s (short-term skin contact).
Benzo[a]pyrene (mg/kg)	<MDL (<0.2)***	1	20
Sum 16 PAH (US EPA) (mg/kg)**	<MDL (<0.2)***	10	200

Remark : ** = Only PAH substances >0.2 mg/kg are taken into account while calculating the sum of PAHs
*** = In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material which indented to be put in the mouth by additional specific migration tests of PAH components based on DIN EN 1186ff and §64 LFGB 80.30-1. The conclusion of the migration test results must be made based on food law criteria.

ATTACHMENTS

RoHS Testing Flow Chart

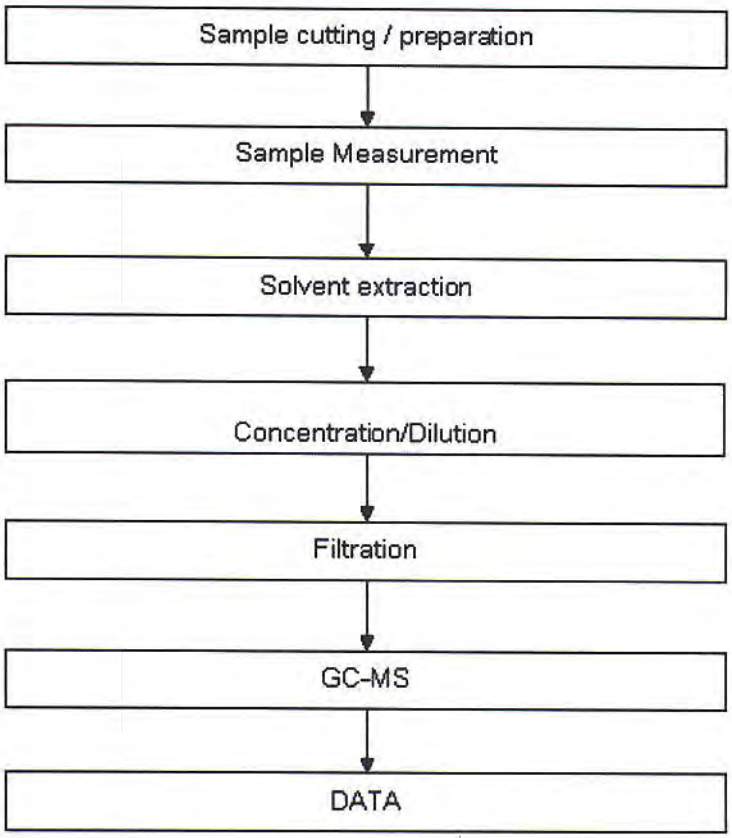
1) Name of the person who made testing: Bella Wang / Cutey Yu / Ross Zhan
2) Name of the person in charge of testing: Adams Yu / Ryan Yang
3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr6+ and PBBs/PBDEs test method excluded).



ATTACHMENTS

Phthalates Testing Flow Chart

1) Name of the person who made testing: Tina Zhao
2) Name of the person in charge of testing: Ryan Yang

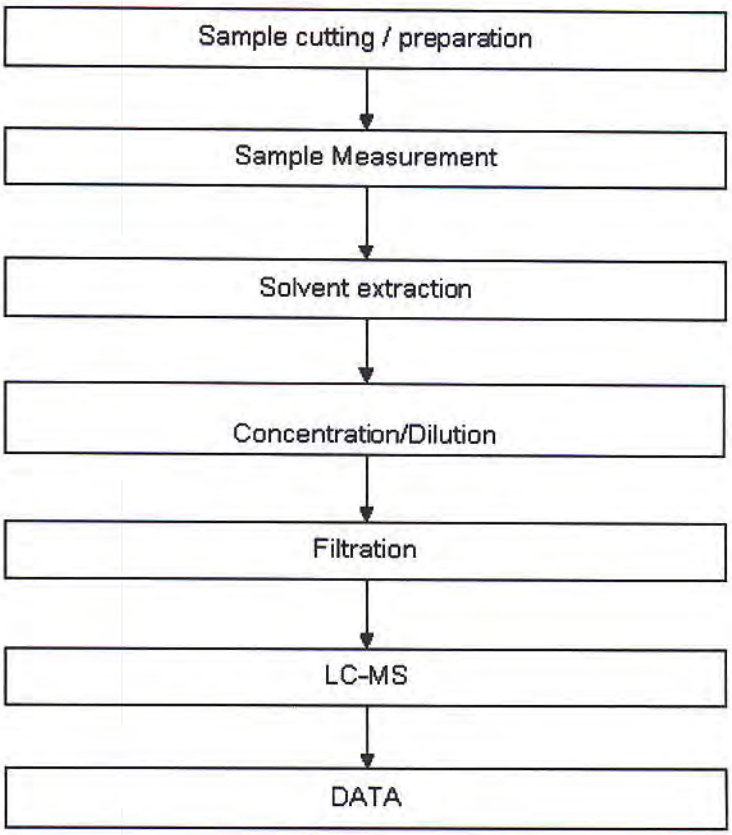


198 Kezhu Road,Scientech Park Guangzhou Economic & Technology Development District,Guangzhou,China 510663 t (86-20) 82155555 f (86-20) 82075113 www.cn.sgs.com
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e sgs.china@sgs.com

ATTACHMENTS

PFOA / PFOS Testing Flow Chart

1) Name of the person who made testing: Cindy Huang
2) Name of the person in charge of testing: Ryan Yang



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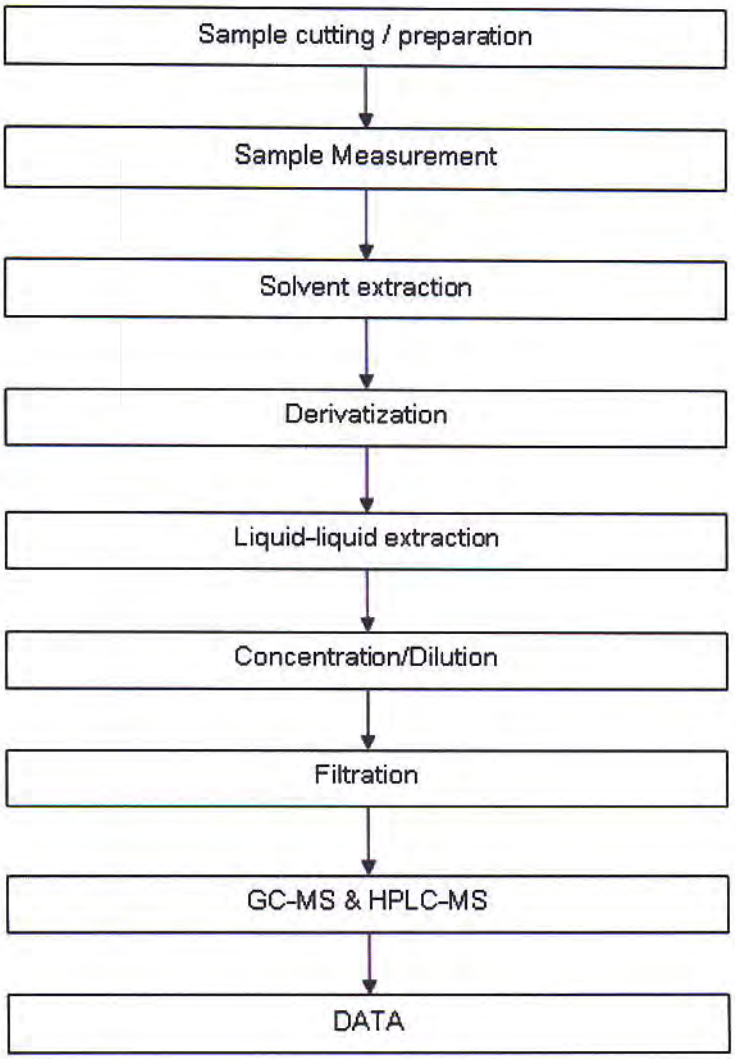
ATTACHMENTS

TBBP-A Testing Flow Chart

1) Name of the person who made testing: Cutey Yu
2) Name of the person in charge of testing: Ryan Yang



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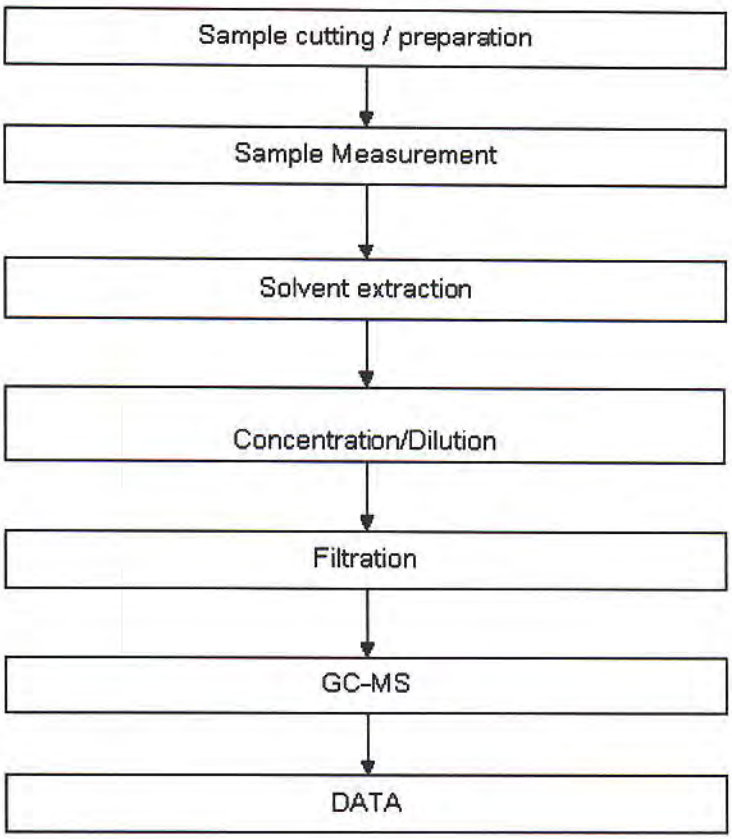
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e sgs.china@sgs.com

ATTACHMENTS

PAHs Testing Flow Chart

1) Name of the person who made testing: Cutey Yu
2) Name of the person in charge of testing: Ryan Yang



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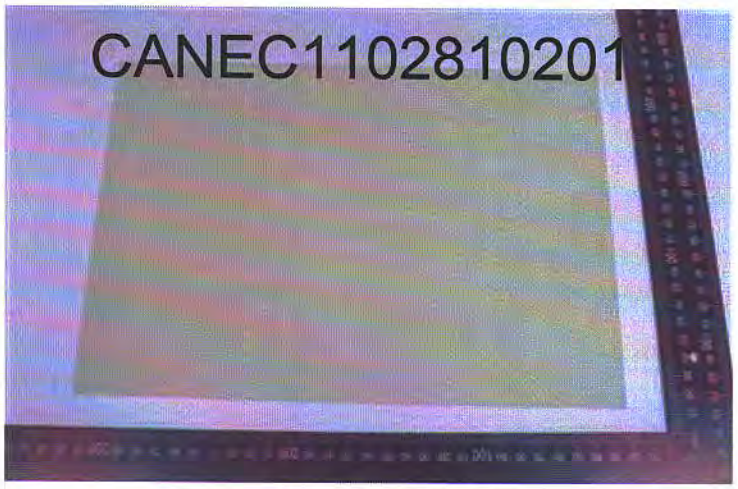
Sample photo:



CAN11-028102.001

SGS authenticate the photo on original report only

*** End of Report ***

198 Kezhu Road,Scientech Park Guangzhou Economic & Technology Development District,Guangzhou,China 510663 t (86-20) 82155555 f (86-20) 82075113 www.cn.sgs.com
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e sgs.china@sgs.com

Test Report Number : TWNC00216857

Applicant: Littelfuse Inc. Date : Jul 25, 2011
LIMA Technology Center, Lipa City,
Malvar, Batangas

Sample Description:
One (1) group of submitted samples said to be :
Part Description : Aluminum Material
Date Sample Received : Jul 19, 2011
Date Test Started : Jul 19, 2011

Test Conducted :
As requested by the applicant, for details please refer to attached pages.

Authorized By:
On Behalf Of Intertek Testing Services
Taiwan Limited

K. Y. Liang
Director

Intertek Testing Services Taiwan Ltd.
8F., No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan, R.O.C.
全國公證檢驗股份有限公司
114 台北市內湖區瑞光路 423 號 8 樓
Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2400 · 6602-2401

Number : TWNC00216857

Test Conducted

(Ⅰ) Test Result Summary :

Test Item	Result (ppm)
	Silvery Metal
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr^{6+}) content (mg/kg with $50cm^2$)	Negative (< 0.02)

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg
ND = Not detected
< = Less than
mg/kg with $50cm^2$ = milligram per kilogram with 50 square centimetre
Negative = A negative test result indicated positive observation was not found at the time of Test.

Responsibility of Chemist : Irene Chiou / Kevin Liu / Cathy Chen

Date Sample Received : Jul 19, 2011
Test Period : Jul 19, 2011 To Jul 25, 2011

(Ⅱ) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr^{6+}) Content	0.1% (1000ppm)

The above limits were quoted from 2002/95/EC and amendment 2005/618/EC for homogeneous material.

Intertek Testing Services Taiwan Ltd.
8F., No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan, R.O.C.
全國公證檢驗股份有限公司
114 台北市內湖區瑞光路 423 號 8 樓
Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2400 · 6602-2401

Number : TWNC00216857

Test Conducted

(Ⅲ) Test Method:

Test Item	Test Method	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr^{6+}) content	With reference to IEC 62321 edition 1.0:2008 in annex B, by boiling water extraction and determined by UV-Vis spectrophotometer.	0.02 mg/kg with $50cm^2$

Remark: Reporting limit = Quantitation limit of analyte in sample

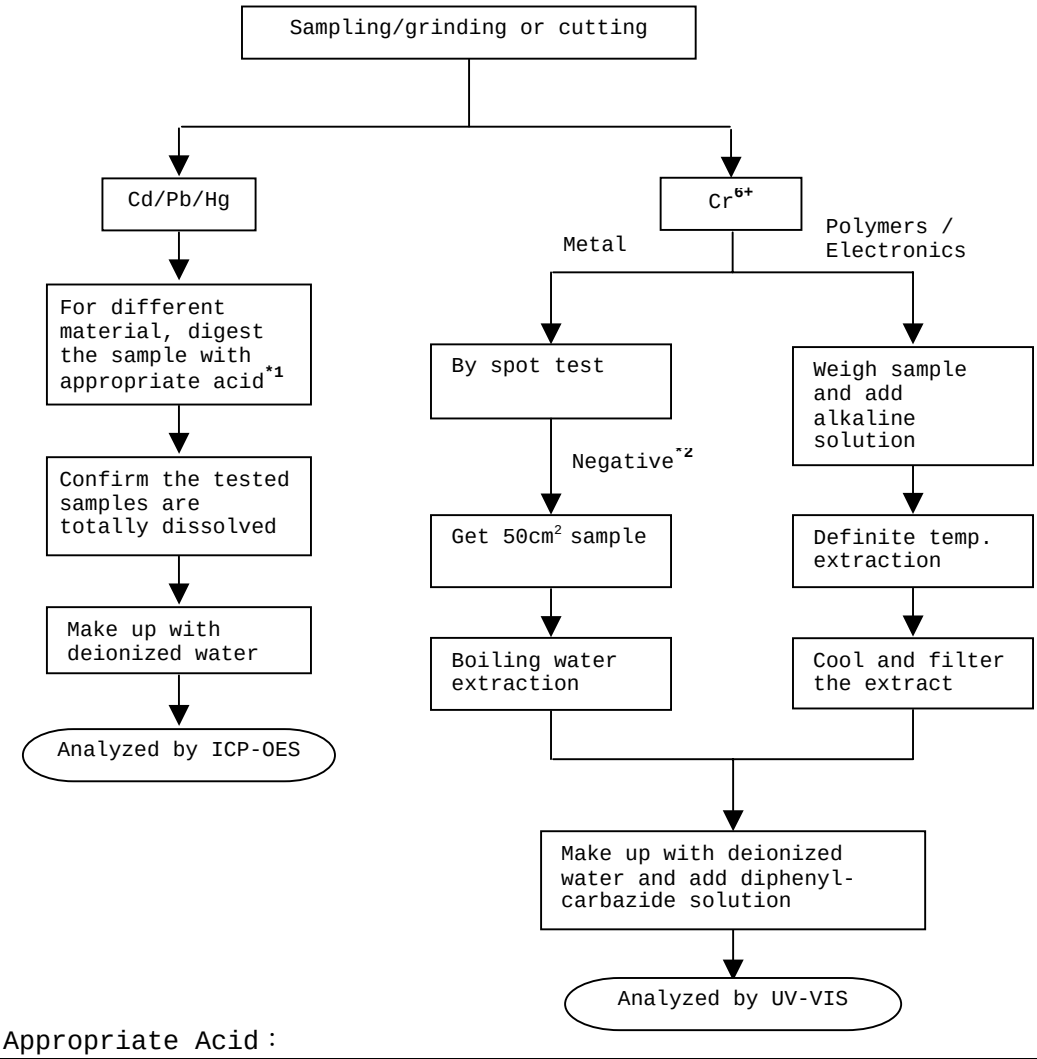
Intertek Testing Services Taiwan Ltd.
8F., No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan, R.O.C.
全國公證檢驗股份有限公司
114 台北市內湖區瑞光路 423 號 8 樓
Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2400 · 6602-2401

Number : TWNC00216857

Test Conducted

(Ⅳ) Measurement Flowchart:

Test For Cd/Pb/Hg/Chromium (VI)
Reference Standard：IEC 62321 edition 1.0:2008



Remarks:
*1: List Of Appropriate Acid：

Material	Acid Added For Digestion
Polymers	HNO_3, HCl, HF, H_2O_2, H_3BO_3
Metals	HNO_3, HCl, HF
Electronics	HNO_3, HCl, H_2O_2, HBF_4

*2: If the result of spot test is positive, Chromium VI would be determined as detected.

End of Report

Intertek Testing Services Taiwan Ltd.
8F., No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan, R.O.C.
全國公證檢驗股份有限公司
114 台北市內湖區瑞光路 423 號 8 樓
Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2400 · 6602-2401

Number : TWNC00216857

Test Conducted

Photo

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8F., No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan, R.O.C.
全國公證檢驗股份有限公司
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Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2400 · 6602-2401

Test Report Number : TWNC00216854

Applicant: Littelfuse Inc. Date : Jul 27, 2011
LIMA Technology Center, Lipa City,
Malvar, Batangas.

Sample Description:
One (1) group of submitted samples said to be :
Part Description : Steel
Date Sample Received : Jul 19, 2011
Date Test Started : Jul 19, 2011

Test Conducted :
As requested by the applicant, for details please refer to attached pages.

Authorized By:
On Behalf Of Intertek Testing Services
Taiwan Limited

K. Y. Liang
Director

Intertek Testing Services Taiwan Ltd.
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Number : TWNC00216854

Test Conducted

(Ⅰ) Test Result Summary :

Test Item	Result (ppm)	
	(1)	(2)
Heavy Metal		
Cadmium (Cd) content	ND	ND
Lead (Pb) content	ND	ND
Mercury (Hg) content	ND	ND
Chromium VI (Cr^{6+}) content (mg/kg with $50cm^2$)	Negative (< 0.02)	Negative (< 0.02)

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg
ND = Not detected
< = Less than
mg/kg with $50cm^2$ = milligram per kilogram with 50 square centimetre
Negative = A negative test result indicated positive observation was not found at the time of Test.
# = Due to the insufficient sample area, reduced total sample surface of 10 cm^2 was used and the dilution factor was adjusted accordingly.

Tested Components
(1) Black Plating Layer
(2) Silvery Metal Base Material

Responsibility of Chemist : Irene Chiou / Kevin Liu / Cathy Chen

Date Sample Received : Jul 19, 2011
Test Period : Jul 19, 2011 To Jul 27, 2011

(Ⅱ) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr^{6+}) Content	0.1% (1000ppm)

The above limits were quoted from 2002/95/EC and amendment 2005/618/EC for homogeneous material.

Intertek Testing Services Taiwan Ltd.
8F., No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan, R.O.C.
全國公證檢驗股份有限公司
114 台北市內湖區瑞光路 423 號 8 樓
Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2400 · 6602-2401

Test Conducted

(Ⅲ) Test Method:

Test Item	Test Method	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr^{6+}) content	With reference to IEC 62321 edition 1.0:2008 in annex B, by boiling water extraction and determined by UV-Vis spectrophotometer.	0.02 mg/kg with $50cm^2$

Remark: Reporting limit = Quantitation limit of analyte in sample

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114 台北市內湖區瑞光路 423 號 8 樓
Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2400 · 6602-2401

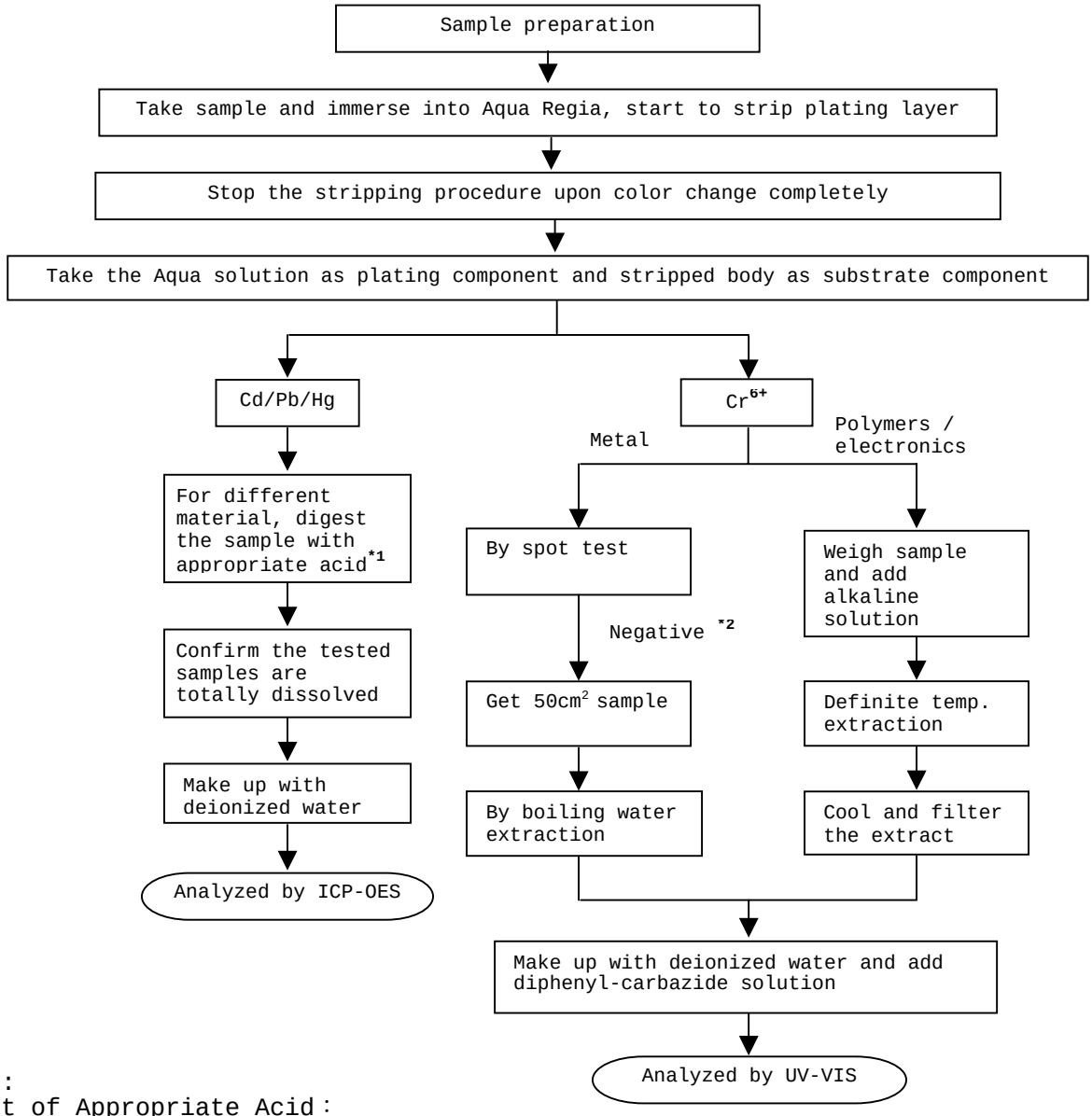
Number : TWNC00216854

Test Conducted

(Ⅳ) Measurement Flowchart:

Test for Cd/Pb/Hg/Chromium (VI)

Reference Standard：IEC 62321 edition 1.0:2008



Remarks:

*1: List of Appropriate Acid：

Material	Acid Added for Digestion
Polymers	HNO_3, HCl, HF, H_2O_2, H_3BO_3
Metals	HNO_3, HCl, HF
Electronics	HNO_3, HCl, H_2O_2, HBF_4

*2: If the result of spot test is positive, Chromium VI would be determined as detected.

End of Report

Intertek Testing Services Taiwan Ltd.
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114 台北市內湖區瑞光路 423 號 8 樓
Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2400 · 6602-2401

Number : TWNC00216854

Test Conducted

Photo

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8F., No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan, R.O.C.
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114 台北市內湖區瑞光路 423 號 8 樓
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Test Report

No. SH10090106/ CHEM Date: Sep. 9, 2010

JIAGANG SYNTHETIC MATERIALS CO.,LTD OF JIAXING
159# XINDA ROAD, XIUZHOU INDUSTRY GARDEN OF JIAXING

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

SGS Ref No.	: 10384398-2
Model No.	: 618(618-2)/9001
Supplier	: JIAGANG SYNTHETIC MATERIALS CO.,LTD OF JIAXING
Date of Sample Received	: SEP 04, 2010
Testing Period	: SEP 04, 2010 TO SEP 09, 2010
Test Method	: Please refer to next page(s).
Test Result(s)	: Please refer to next page(s).
Conclusion	: Based on the performed tests on submitted sample(s), the results **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of
SGS-CSTC Chemical Laboratory

Fan Jingjie, JJ
Approved Signatory

SGS-CSTC Standards Technical Services Co., Ltd.
Shanghai Chemical Laboratory
3rd Building,No.889,Yishan Road,Shanghai,China 200233 tE&E:(86-21) 61402553 fE&E:(86-21) 64953679 www.cn.sgs.com
中国·上海·宜山路889号3号楼 邮编: 200233 HL:(86-21) 61402594 HL:(86-21) 54500353 e sgs.china@sgs.com
Member of the SGS Group (SGS SA)

Test Results:
Description for specimen 1 : Black material

A: RoHS Directive 2002/95/EC

Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium (Cd)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2	100
Lead (Pb)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2	1000
Mercury (Hg)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2	1000
Hexavalent Chromium (CrVI) by alkaline extraction	mg/kg	IEC 62321: 2008, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	-	N.D.	-	1000
Monobromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Dibromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tribromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tetrabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Pentabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Hexabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Heptabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Octabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Nonabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Decabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Sum of PBDEs	mg/kg	-	N.D.	-	1000
Monobromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Dibromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tribromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tetrabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Pentabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Hexabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Heptabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Octabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Nonabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Decabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	

Note:
1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. "-" = Not regulated
5.The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC

B: PAHs (Polynuclear Aromatic Hydrocarbons)

Test Item(s)	Unit	Test Method	Results	MDL
Naphthalene (NAP)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Acenaphthylene (ANY)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Acenaphthene (ANA)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Fluorene (FLU)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Phenanthrene (PHE)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Anthracene (ANT)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Fluoranthene (FLT)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Pyrene (PYR)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(a)anthracene (BaA)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Chrysene (CHR)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(b)fluoranthene (BbF)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(k)fluoranthene (BkF)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(a)pyrene (BaP)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Indeno(1-,2,3-c,d)pyrene (IPY)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Dibenzo(a,h)anthracene (DBA)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(g,h,i)perylene (BPE)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Sum of 16 PAHs acc. US EPA	mg/kg	-	N.D.	-

Note:
1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

ZEK 01.2-08 : Restraining maximum values for products

Parameter	Category 1	Category 2	Category 3
	Material indented to be put in the mouth or material for toys with normal skin contact for children aged < 36 months	Materials those are not included in Category 1, with predictable contact with the skin longer than 30 s. (long-term skin contact).	Materials those are not included in Category 1 or 2, with predictable skin contact up to 30 s (short-term skin contact).
Benzo[a]pyrene (mg/kg)	<MDL (<0.2)***	1	20
Sum of 16 PAH (US EPA) (mg/kg)**	<MDL (<0.2)***	10	200

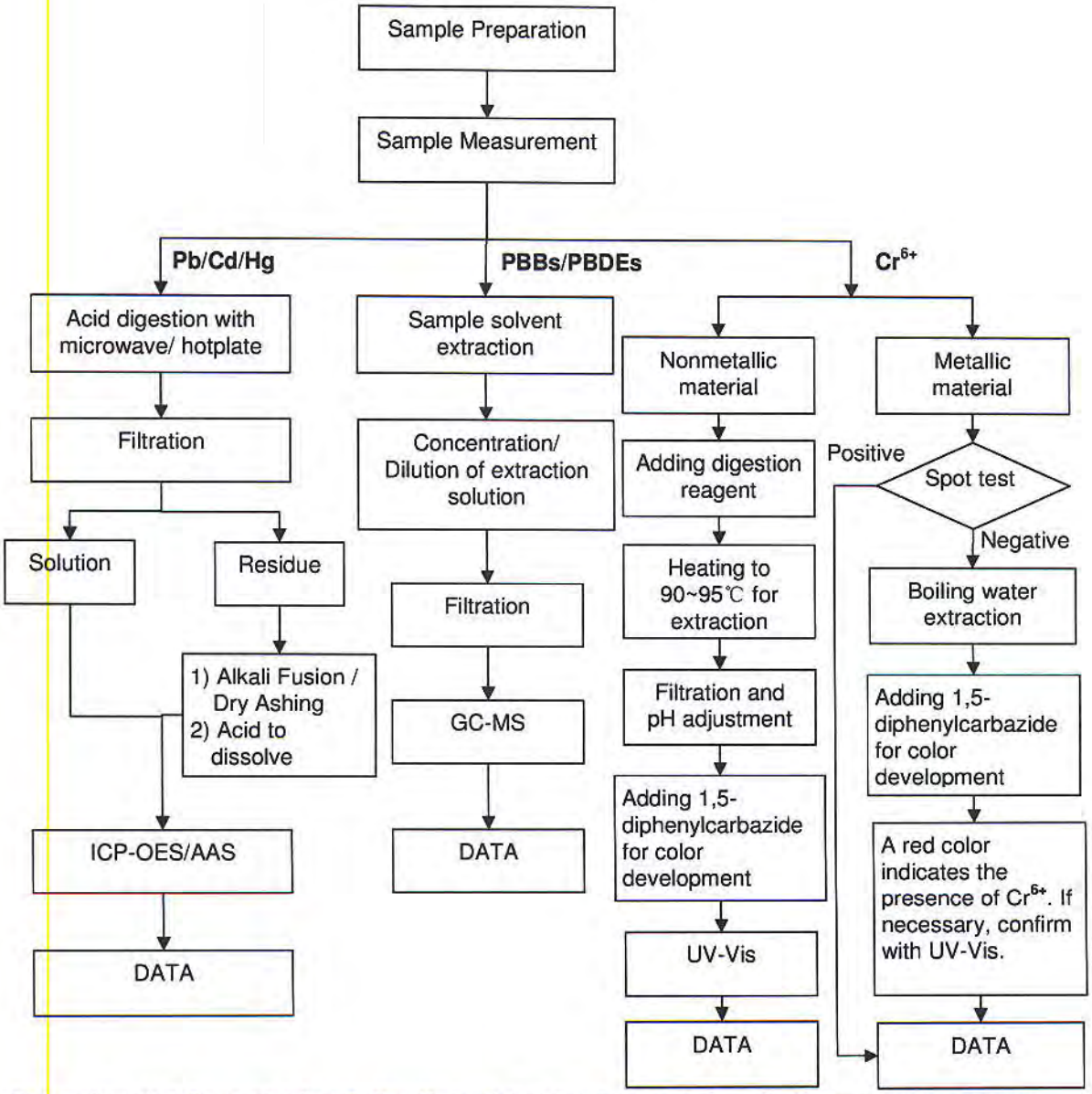
Remark:
**= Only PAH substances >0.2 mg/kg are taken into account while calculating the sum of PAHs
*** = In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material which indented to be put in the mouth by additional specific migration tests of PAH components based on DIN EN 1186ff and §64 LFGB 80.30-1. The conclusion of the migration test results must be made based on food law criteria.

These tests were subcontracted to SGS GZ CHEM LAB (GZ1009102625), (Date of testing: 2010/09/04-09/09).

ATTACHMENTS

RoHS Testing Flow Chart

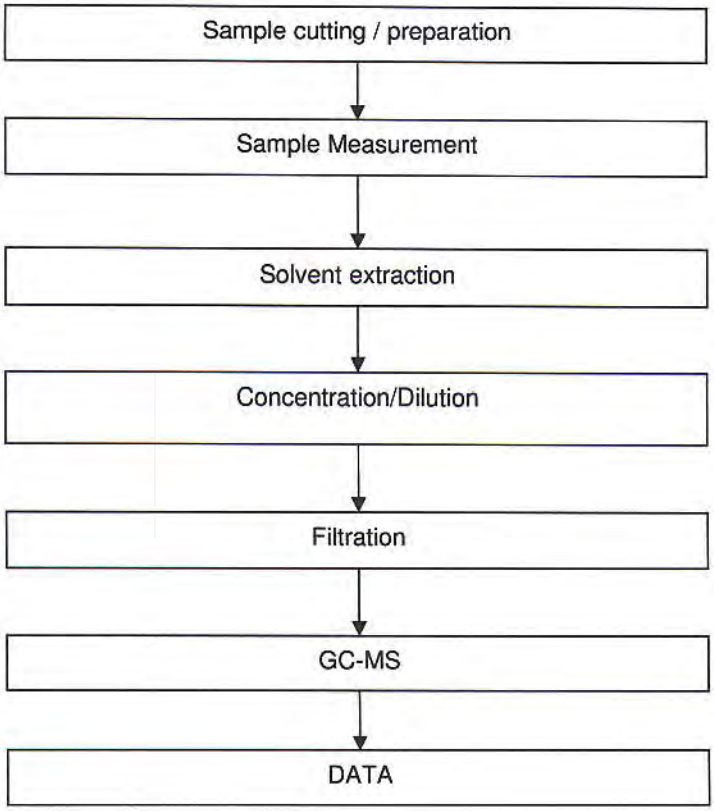
1) Name of the person who made testing: Bella Wang / Cutey Yu / Ross Zhan
2) Name of the person in charge of testing: Adams Yu / Ryan Yang



ATTACHMENTS

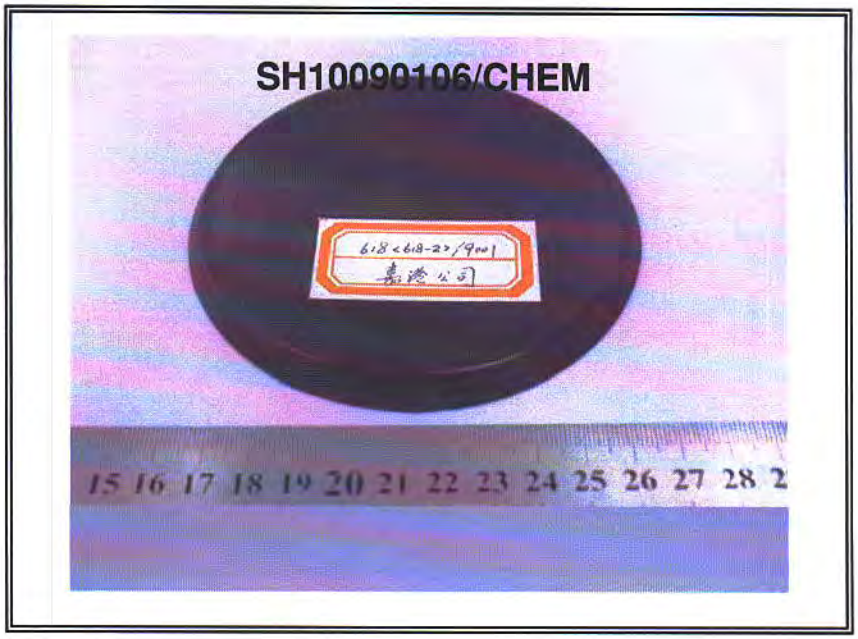
PAHs Testing Flow Chart

1) Name of the person who made testing: Cutey Yu
2) Name of the person in charge of testing: Ryan Yang



SGS-CSTC Standards Technical Services Co., Ltd.
Shanghai Branch Chemical Laboratory
3rd Building,No.889,Yishan Road,Shanghai,China 200233
中国·上海·宜山路889号3号楼 邮编: 200233
tE&E:(86-21) 61402553 fE&E:(86-21) 64953679 www.cn.sgs.com
HL:(86-21) 61402594 HL:(86-21) 54500353 e sgs.china@sgs.com

Sample photo :



SGS authenticate the photo on original report only

*** End of Report ***

SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch
3rd Building,No.889,Yishan Road,Shanghai,China 200233 tE&E:(86-21) 61402553 fE&E:(86-21) 64953679 www.cn.sgs.com
中国·上海·宜山路889号3号楼 邮编: 200233 HL:(86-21) 61402594 HL:(86-21) 54500353 e sgs.china@sgs.com
Member of the SGS Group (SGS SA)

测试报告

No. SHAEC1102902201　　日期: 2011年03月18日　　第1页,共4页

乐清市精饰电镀厂

浙江省乐清市北白象镇象塔南路42号

以下测试之样品是由申请者所提供及确认：镀锌层

SGS工作编号：	SP11-006643 - SH
型号：	配件
样品接收日期：	2011年03月14日
测试周期：	2011年03月14日 - 2011年03月18日
测试要求：	根据客户要求测试
测试方法：	请参见下一页
测试结果：	请参见下一页
结论：	基于所送样品进行的测试, 测试结果与欧盟RoHS指令2002/95/EC以及后续修正指令的要求相符

通标标准技术服务有限公司
授权签名

Fan Jingjie, JJ范晶捷
批准签署人

3rd Building,No.889 Yishan Road Xuhui District,Shanghai China 200233　t E&E (86-21) 61402553 f E&E (86-21)64953679 www.cn.sgs.com
中国·上海·徐汇区宜山路889号3号楼 邮编: 200233　HL: (86-21) 61402594 HL: (86-21)54500353 e sgs.china@sgs.com

测试结果：

样品部件外观描述：

样品编号	SGS样品ID	描述
1	SHA11-029022.001	银蓝色金属

备注：

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = 检测极限值

(3) ND = 未检出 (< MDL)

(4) "-" = 未规定

RoHS指令2002/95/EC

测试方法： 参照IEC 62321:2008:

(1) 用ICP-OES测定镉的含量.

(2) 用ICP-OES测定铅的含量.

(3) 用ICP-OES测定汞的含量.

(4) 用点测试法/紫外-可见分光光度计比色法测定六价铬的含量.

测试项目	限值	单位	MDL	001
镉 (Cd)	100	mg/kg	2	ND
铅(Pb)	1,000	mg/kg	2	ND
汞 (Hg)	1,000	mg/kg	2	ND
六价铬(CrVI)	-	-	◇	Negative

备注：

(1) 最大允许极限值引用自2002/95/EC RoHS指令和后继修正指令2005/618/EC.

(2) ◇ 点测试法:

Negative= 镀层中未检测到六价铬, Positive = 镀层中检测到六价铬;

(当点测试结果为Negative或无法确定时,将采用沸水萃取法作进一步的结果验证.)

◇ 沸水萃取法:

Negative = 镀层中未检测到六价铬

Positive = 镀层中检测到六价铬; 表明50 cm²表面积的被测试样品的沸水萃取液中六价铬的浓度等于或大于0.02 mg/kg.

针对金属表面的防腐涂层:由于未获知样品的存储条件和生产日期,样品的六价铬测试结果仅代表测试时样品的状态.

3rd Building,No.889 Yishan Road Xuhui District,Shanghai China 200233 t E&E (86-21) 61402553 f E&E (86-21)64953679 www.cn.sgs.com
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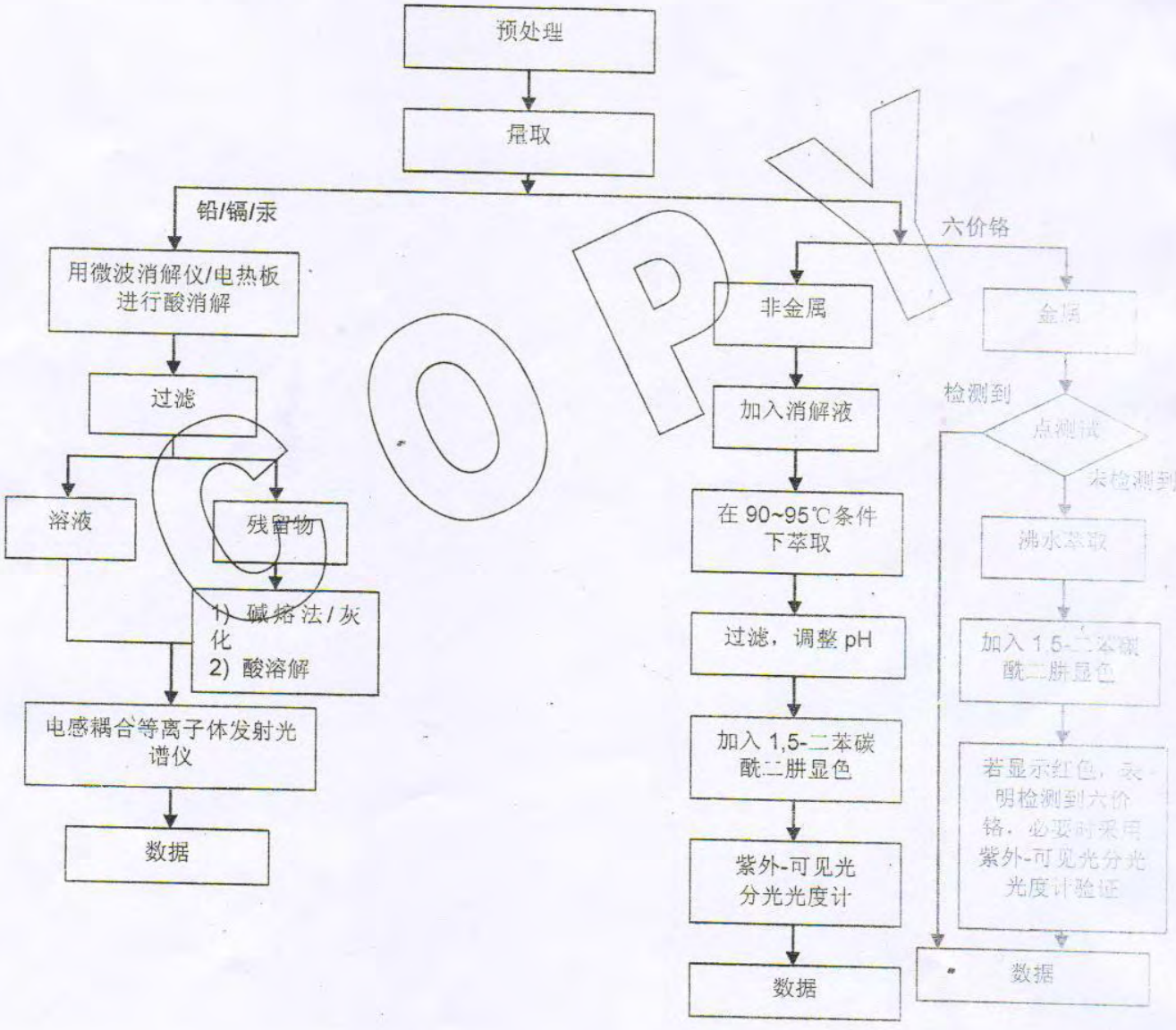
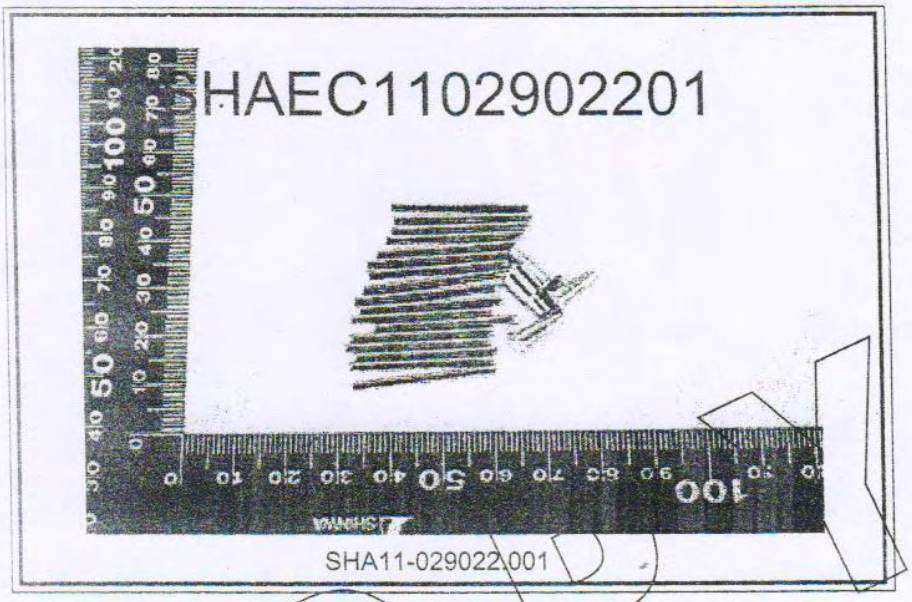
附件

RoHS 测试流程图

1) 分析人员：肖飞/徐双/赵旭东
2) 项目负责人：张春华/徐亮
3) 样品按照下述流程被完全消解（六价铬测试除外）



样品照片:



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*** 报告完 ***

测试报告

No. SHAEC1103841401　　日期: 2011年03月31日　　第1页,共4页

乐清市精饰电镀厂
浙江省乐清市北白象镇象塔南路42号

以下测试之样品是由申请者所提供及确认：镀锡层

SGS工作编号：	SP11-008489 - SH
型号：	配件
样品接收日期：	2011年03月28日
测试周期：	2011年03月28日 - 2011年03月31日
测试要求：	根据客户要求测试
测试方法：	请参见下一页
测试结果：	请参见下一页
结论：	基于所送样品进行的测试，测试结果与欧盟RoHS指令2002/95/EC以及后续修正指令的要求相符

通标标准技术服务有限公司
授权签名

Fan Jingjie, JJ范晶捷
批准签署人

3/F,Building,No.889 Yishan Road Xuhui District,Shanghai China 200233　t E&E (86-21) 61402553　f E&E (86-21)64953679　www.cn.sgs.com
中国·上海·徐汇区宜山路889号3号楼　邮编: 200233　HL: (86-21) 61402594　HL: (86-21)54500353　e sgs.china@sgs.com

测试结果：

样品部件外观描述：

样品编号	SGS样品ID	描述
1	SHA11-038414.001	银色金属

备注：

(1) 1 mg/kg = 1 ppm = 0.0001%
(2) MDL = 检测极限值
(3) ND = 未检出 (< MDL)
(4) "-" = 未规定

RoHS指令2002/95/EC

测试方法： 参照IEC 62321:2008:
(1) 用ICP-OES测定镉的含量.
(2) 用ICP-OES测定铅的含量.
(3) 用ICP-OES测定汞的含量.
(4) 用点测试法/紫外-可见分光光度计比色法测定六价铬的含量.

测试项目

	限值	单位	MDL	001
镉 (Cd)	100	mg/kg	2	ND
铅(Pb)	1,000	mg/kg	2	ND
汞 (Hg)	1,000	mg/kg	2	ND
六价铬(CrVI)	-	-	◇	Negative

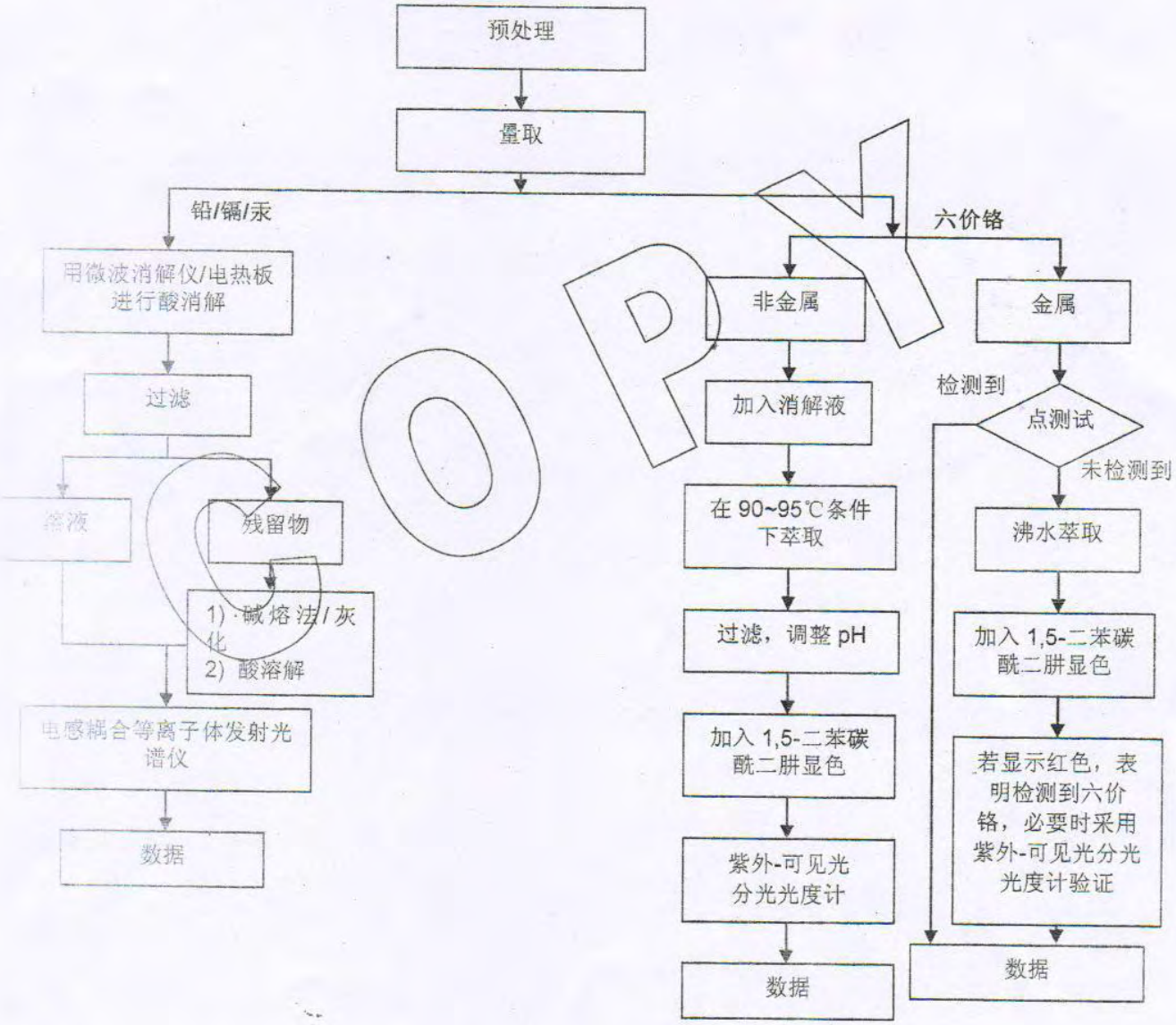
备注：

(1) 最大允许极限值引用自2002/95/EC RoHS指令和后继修正指令2005/618/EC.
(2) ◇ 点测试法:
Negative= 镀层中未检测到六价铬, Positive = 镀层中检测到六价铬;
(当点测试结果为Negative或无法确定时,将采用沸水萃取法作进一步的结果验证.)
◇ 沸水萃取法:
Negative = 镀层中未检测到六价铬
Positive = 镀层中检测到六价铬; 表明50 cm²表面积的被测试样品的沸水萃取液中六价铬的浓度等于或大于0.02 mg/kg.
针对金属表面的防腐涂层:由于未获知样品的存储条件和生产日期,样品的六价铬测试结果仅代表测试时样品的状态.

附件

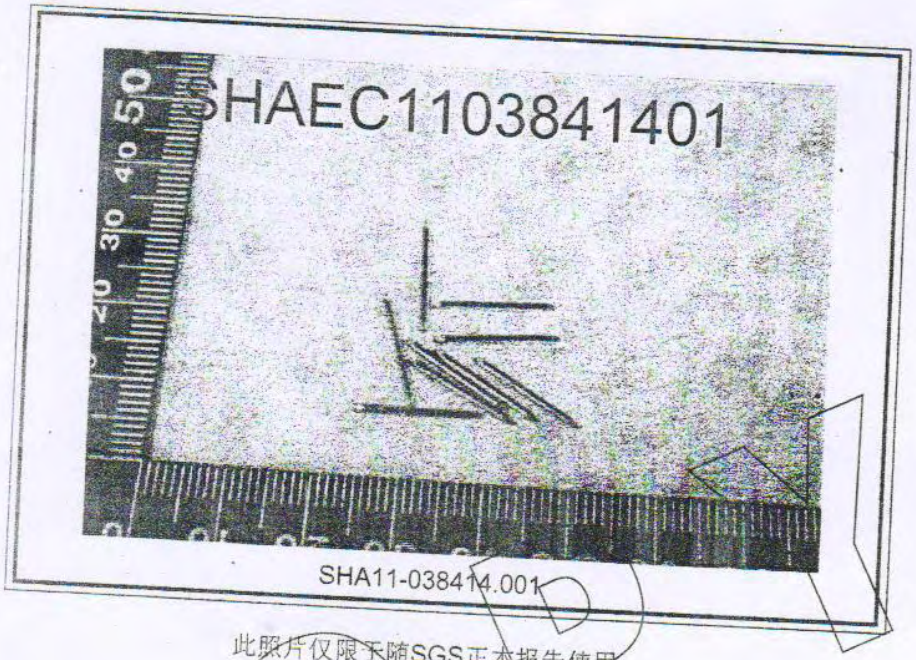
RoHS 测试流程图

1) 分析人员：肖飞/徐双/赵旭东
2) 项目负责人：张春华/徐亮
3) 样品按照下述流程被完全消解（六价铬测试除外）



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
3rd Building, No.889 Yishan Road Xuhui District, Shanghai China 200233
中国·上海·徐汇区宜山路889号3号楼 邮编: 200233
t E&E (86-21) 61402553 f E&E (86-21)64953679 www.cn.sgs.com
HL: (86-21) 61402594 HL: (86-21)54500353 e sgs.china@sgs.com
Member of the SGS Group (SGS SA)

样品照片:



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*** 报告完 ***

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t E&E (86-21) 61402553 f E&E (86-21)64953679
HL: (86-21) 61402594 HL: (86-21)54500353
www.cn.sgs.com
e sgs.china@sgs.com

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