

ICP Test Report Certification Packet

Company name:	Littelfuse, Inc.
Product Series:	2AG Cartridge
Product #:	230xxxDRT1SSP Series
Issue Date:	December 13, 2011
2002/95/EC)-restricted s packing/packaging mater In addition, it is hereby refor unit parts, the packing.	by Littelfuse, Inc. that there is neither RoHS (EU Directive ubstance nor such use, for materials to be used for unit parts, for ials, and for additives and the like in the manufacturing processes. Properted to you that the parts and sub-materials, the materials to be used /packaging materials, and the additives and the like in the manufacturing sed of the following components.
	Issued by: KRISTEEN BACILA <global ehs="" engineer=""></global>
(1) Parts, sub-materials a This document covers the Littelfuse, Inc.	and unit parts ne 2AG Cartridge RoHS-Compliant series products manufactured by
< Raw Materials L Please see Tab	
(2) The ICP data on all Please see app	measurable substances propriate 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	HP-H (895-195)	Sleeve – Heat shrinkable tube	3-9
2	082xxx	Tin Coated Wire- Cu CDA 102 Sn Plated	10-14
			15-19,
4	3m-3779-PG (087244)	Adhesive	20-23
			24-27,
5	EP608 (087355)	Glue	28-31
	YTW102		
6	(692535-001 / 692471)	Solder	32-36
			37-40,
7	910-537-3	Сар	41-44
8	C909-369-001	BOSI Glass Tube - Body	45-48
9	C909-367-001	BOSI Glass Tube - Body	45-48
10	648106-001	Yarn	49-56
11	648115	Yarn	57-64
12	082xxx-001	Wire-99% Cu Sn Plated	65-71

CTI

Test Report

Report No. RLSHD000536370004

Page 1 of 7

Applicant

SIP GREAT PACKAGING AND METEL CO. LTD

Address

MINGYING INDUSTRIAL PARK, SUZHOU INDUSTRIAL PARK

Report on the submitted sample(s) said to be

Sample Name

Heat-shrinkable Tubes

Sample Description

Black plastic tubes with white ink

Part No.

HP-H

Material

EVA/PE

Sample Received Date

Feb. 22, 2011

Testing Period

Feb. 22, 2011 to Feb. 28, 2011

Test Requested

To determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Polycyclic Aromatic Hydrocarbons (PAHs) content in the submitted sample according to the request of

client.

Test Method

Please refer to the following page(s).

Test Result(s)

Please refer to the following page(s).

Tested by (CTI)

Approved by -

Technical Manager

Inspected by Zhong

Yijun

Date

Feb. 28, 2011

No. 94634794

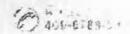


Report No. RLSHD000536370004 Test Method

Page 2 of 7

Test Item(s)	Test Method	Measured Equipment(s)	MDL
Lead(Pb)	IEC 62321:2008 Ed.1 Sec.8	ICP-OES	2mg/kg
Cadmium(Cd)	IEC 62321:2008 Ed.1 Sec.8	ICP-OES	2mg/kg
Mercury(Hg)	IEC 62321:2008 Ed.1 Sec.7	ICP-OES	2mg/kg
Hexavalent Chromium (Cr(VI))	IEC 62321:2008 Ed.1 Annex C	UV-Vis	2mg/kg
Polybrominated Biphenyls (PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321:2008 Ed.I Annex A	GC-MS	5mg/kg
Fluorine (F)	Refer to BS EN 14582:2007	1C	10mg/kg
Chlorine (CI)	Refer to BS EN 14582:2007	IC	10mg/kg
Bromine (Br)	Refer to BS EN 14582:2007	IC	10mg/kg
lodine (1)	Refer to BS EN 14582:2007	IC	10mg/kg
Polycyclic Aromatic Hydrocarbons (PAHs)	Refer to US EPA 8270D:2007	GC-MS	0.2mg/kg

lest Result(s)	
Tested Item(s)	Content
Lead(Pb)	N.D.
Cadmium (Cd)	N.D.
Mercury(Hg)	N.D.
Hexavalent Chromium (Cr(VI))	N.D.
Tested Item(s)	Content
Polybrominated Biphenyls (PBBs)	
Monobromobiphenyl	N.D.
Dibromobiphenyl	N.D.
Tribromobiphenyl	N.D.
Tetrabromobiphenyl	N.D.
Pentabromobiphenyl	N.D.
Hexabromobiphenyl	N.D.
Heptabromobipheny!	N.D.
Octabromobiphenyl	N.D.
Nonabromobiphenyl	N.D.
Decabromobiphenyl	N.D.



CTI

Test Report

Tested Item(s)	Page 3 of 7
Polybrominated Diphenyl Ethers (PBDEs)	Content
The state of the s	- 40
Monobromodiphenyl ether Dibromodiphenyl ether	N.D.
	N.D.
Tribromodiphenyl ether Tetrabromodiphenyl ether	N.D.
The state of the s	N.D.
Pentabromodiphenyl ether Hexabromodiphenyl ether	N.D.
The state of the s	N.D.
Heptabromodiphenyl ether Octabromodiphenyl ether	N.D.
Nonabromodiphenyl ether	N.D.
Decabromodiphenyl ether	N.D.
Tested Item(s)	Content
Halogen	
Fluorine (F)	N.D.
Chlorine (CI)	128 mg/kg
Bromine (Br)	N.D.
lodine (1)	N.D.
Tested Item(s)	Content
Polycylic Aromatic Hydrocarbons(PAHs)	
Naphthalene	N.D.
Acenaphthylene	N.D.
Acenaphthene	N.D.
Fluorene	N.D.
Phenanthrene	N.D.
Anthracene	N.D.
Fluoranthene	N.D.
Pyrene	N.D.
Benzo[a]anthracene	N.D.
Chrysene	N.D.
Benzo[b]fluoranthene	N.D.
Benzo[k]fluoranthene	N.D.
Benzo[a]pyrene	N.D.
Indenol[1,2,3-cd]pyrene	N.D.
Dibenz[a,h]anthracene	N.D.
Benzo[g,h,i]perylene	N.D.

CTI

Test Report

Report No. RLSHD000536370004

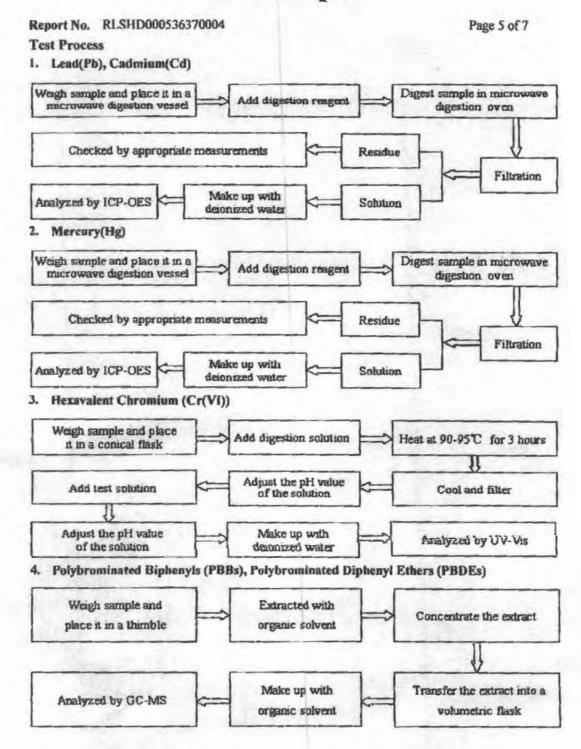
Page 4 of 7

Note:

The sample had been dissolved totally tested for Lead, Cadmium, Mercury.

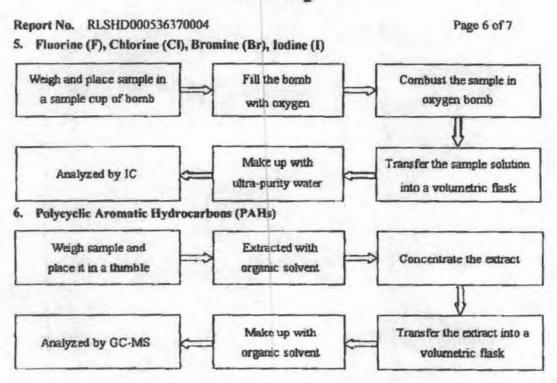
-MDL = Method Detection Limit -N.D. = Not Detected (<MDL) -mg/kg = ppm = parts per million





CTI

Test Report

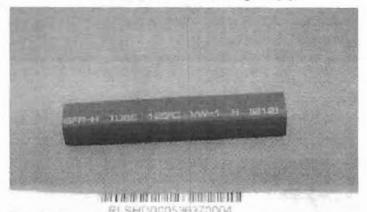




Report No. RLSHD000536370004

Page 7 of 7

Photo(s) of the sample(s)



7 8 9 10 11 12 13 14 15 16 17 18 19

*** End of report ***

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No.1996, Xinjinqiao Road, Pudong, Shanghai





No. TSNEC1110357903

Date: 26 Oct 2011

Page 1 of 5

TIANJIN BAIRUIJIE WELDING MATERIAL CO.,LTD.

NO.38,BAOYUAN ROAD,EAST ZONE OF JINNAN DEVELPOPMENT ZONE,JINNAN DISTRICT,TIANJIN CHINA

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

SGS Job No. : TP11-002184 - TJ

Composition: Cu

Date of Sample Received: 21 Oct 2011

Testing Period: 21 Oct 2011 - 26 Oct 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: 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.

Reabeca Zhou Approved Signatory

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邮编: 300457 1 (86-22) 65288000 f (86-22) 25295252



No. TSNEC1110357903

Date: 26 Oct 2011

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Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description TSN11-103579.002 silvery metal wire

Remarks:

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

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2011/65/EU

Test Method: With reference to IEC 62321:2008

Determination of Cadmium by ICP-OES.

(2) Determination of Lead by ICP-OES.

(3) Determination of Mercury by ICP-OES.

(4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method using UV-Vis.

(5) Determination of PBBs / PBDEs by GC-MS.

Test Item(s)	<u>Limit</u>	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1 Page 1	-57	\Q	Negative
Sum of PBBs	1,000	mg/kg	4	ND
Monobromobiphenyl	- 10 - 2 1	mg/kg	5	ND
Dibromobiphenyl	(A)	mg/kg	5	ND
Tribromobiphenyl		mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
H <mark>exabromobiphenyl</mark>	(*)	mg/kg	5	ND
Heptabromobiphenyl		mg/kg	5	ND
Octabromobiphenyl	2	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	2	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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Test Report	No. TSNEC11103579	03	Date: 26	Oct 2011	Page 3 of 5
Test Item(s)	<u>Limit</u>	<u>Unit</u>	MDL	002	
Dibromodiphenyl ether	-	mg/kg	5	ND	
Tribromodiphenyl ether	4	mg/kg	5	ND	
Tetrabromodiphenyl ether	,2	mg/kg	5	ND	
Pentabromodiphenyl ether	4	mg/kg	5	ND	
Hexabromodiphenyl ether	-	mg/kg	5	ND	
Heptabromodiphenyl ether	-	mg/kg	5	ND	
Octabromodiphenyl ether		mg/kg	5	ND	
Nonabromodiphenyl ether	4	mg/kg	5	ND	
Decabromodiphenyl ether	1.2	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 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.

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

For corrosion protection coatings on metals: 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

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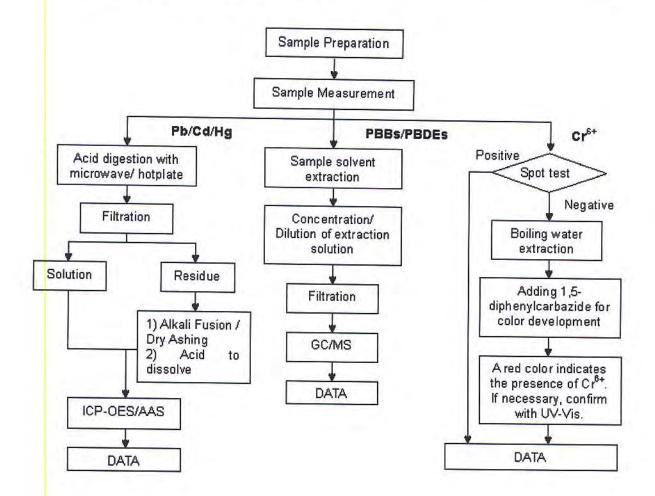
Date: 26 Oct 2011

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ATTACHMENTS

Cd/Pb/Hg/Cr⁶⁺/PBBs&PBDEs Testing Flow Chart

- 1) Name of the person who made testing: Aaron Wang/Jason Li/Angell Yao
- 2) Name of the person in charge of testing: Cindy Yin/Rex Zhu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
- (Cr⁸⁺ and PBBs/PBDEs test method excluded)



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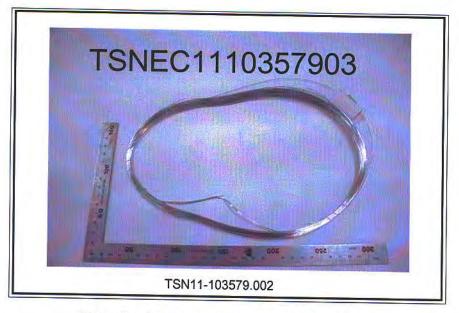


No. TSNEC1110357903

Date: 26 Oct 2011

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Sample photo:



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No. SHAEC1018364101

Date: 23 Dec 2010

Page 1 of 5

3M CHINA LIMITED 222# TIAN LIN ROAD, SHANGHAI (200239)

The following sample(s) was/were submitted and identified on behalf of the clients as: 3M 3779-PG

SGS Job No.:

SP10-042093 - SH

Date of Sample Received :

21 Dec 2010

Testing Period:

21 Dec 2010 - 23 Dec 2010

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 samples, the results comply with the

RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of SGS-CSTC Ltd.

Fan Jingjie, JJ

Approved Signatory

tail Co. Ltd

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No. SHAEC1018364101

Date: 23 Dec 2010

Page 2 of 5

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description

SHA10-183641.001 Yellow translucent solid

Remarks:

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

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2002/95/EC

Test Method: With reference to IEC 62321:2008

- (1) Determination of Cadmium by ICP-OES.
- (2) Determination of Lead by ICP-OES.
- (3) Determination of Mercury by ICP-OES.
- (4) Determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.
- (5) Determination of PBBs / PBDEs content by GC-MS.

Test Item(s)	Limit	<u>Unit</u>	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND
Sum of PBBs	1,000	mg/kg	4	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	(4)	mg/kg	5	ND
Tetrabromobiphenyl	20	mg/kg	5	ND
Pentabromobiphenyl	4	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	2	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	÷	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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Test Report	No. SHAEC10183641	01	Date: 23	Dec 2010	Page 3 of 5
Test Item(s)	<u>Limit</u>	<u>Unit</u>	MDL	001	
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	7 -1 1	mg/kg	5	ND	
Heptabromodiphenyl ether	(2)	mg/kg	5	ND	
Octabromodiphenyl ether	- A	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 the document 2005/618/EC amending RoHS directive 2002/95/EC

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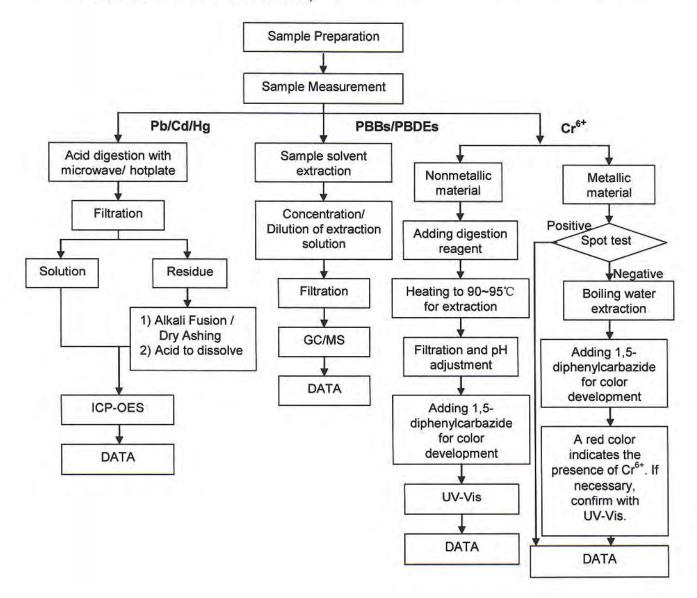
Date: 23 Dec 2010

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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Allen Xiao/ Wesley Wei / Andy Zhao /Elim Lin
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/Tracy Yue
- 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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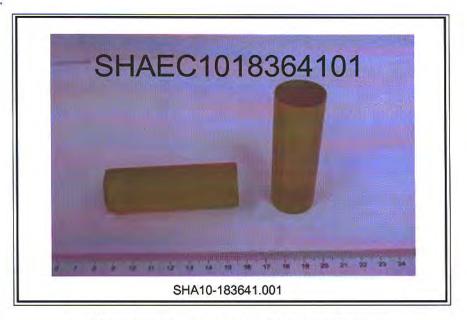


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Sample photo:



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No. SHAEC1018364102

Date: 23 Dec 2010

Page 1 of 4

3M CHINA LIMITED

222# TIAN LIN ROAD, SHANGHAI (200239)

The following sample(s) was/were submitted and identified on behalf of the clients as: 3M 3779-PG

SGS Job No.: SP10-042093 - SH

Date of Sample Received: 21 Dec 2010

Testing Period: 21 Dec 2010 - 23 Dec 2010

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 Ltd.

Fan Jingjie, JJ Approved Signatory

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No. SHAEC1018364102

Date: 23 Dec 2010

Page 2 of 4

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description

1 SHA10-183641.001 Yellow translucent solid

Remarks:

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

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

Halogen

Test Method: With reference to EN 14582: 2007, analysis was performed by Ion Chromatograph (IC).

Test Item(s)	<u>Unit</u>	MDL	001
Fluorine (F)	mg/kg	50	ND
Chlorine (CI)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
lodine (I)	mg/kg	50	ND

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No. SHAEC1018364102

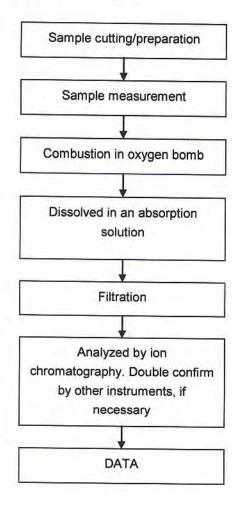
Date: 23 Dec 2010

Page 3 of 4

ATTACHMENTS

Halogen Testing Flow Chart

- 1) Name of the person who made testing: Daisy Gong
- 2) Name of the person in charge of testing: Alex Jiang



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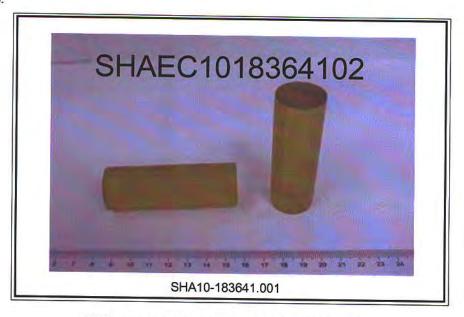


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No. TSNEC1100107601

Date: 28 Mar 2011

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BEIJING HYSTIC NEW MATERIALS CO., LTD. 5 SHUANGYUAN ROAD, BADACHU HIGH-TECH ZONE, BEIJING. 100041, CHINA

:

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

ADHESIVE

SGS Job No.

1060825 - TJ

Composition

EPOXY ADHESIVE

Model No.

EP608

Client Ref. Information

Model No: EP606

Date of Sample Received

23 Mar 2011

Testing Period

23 Mar 2011 - 28 Mar 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

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 Ltd.

Summer Bai

Approved Signatory

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No. TSNEC1100107601

Date: 28 Mar 2011

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Test Results:

ID for specimen 1 : TSN11-001076.001
Description for specimen 1 : grey viscous liquid

RoHS Directive 2002/95/EC

Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium (Cd)	mg/kg	IEC 62321 Ed.1: 2008, ICP-OES	N.D.	2	100
Lead (Pb)	mg/kg	IEC 62321 Ed.1: 2008, ICP-OES	N.D.	2	1000
Mercury (Hg)	mg/kg	IEC 62321 Ed.1: 2008, ICP-OES	N.D.	2	1000
Hexavalent Chromium (CrVI) by alkaline extraction	mg/kg	IEC 62321 Ed.1: 2008, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	1. The Control of the	N.D.	-	1000
Monobromobiphenyl	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Dibromobiphenyl	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Tribromobiphenyl	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Tetrabromobiphenyl	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Pentabromobiphenyl	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Hexabromobiphenyl	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Heptabromobiphenyl	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Octabromobiphenyl	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Nonabromobiphenyl	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Decabromobiphenyl	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Sum of PBDEs	mg/kg	-	N.D.	-	1000
Monobromodiphenyl ether	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Dibromodiphenyl ether	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Tribromodiphenyl ether	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Tetrabromodiphenyl ether	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Pentabromodiphenyl ether	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Hexabromodiphenyl ether	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Heptabromodiphenyl ether	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Octabromodiphenyl ether	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Nonabromodiphenyl ether	mg/kg	IEC 62321 Ed.1: 2008, GC-MS	N.D.	5	
Decabromodiphenyl ether	mg/kg	IEC 62321 Ed.1: 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

Result shown is of the total weight of wet sample

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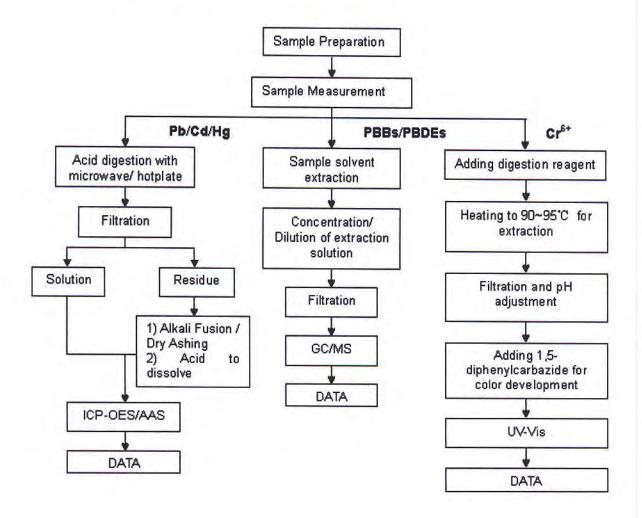
Date: 28 Mar 2011

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ATTACHMENTS

Cd/Pb/Hg/Cr^{S+}/PBBs&PBDEs Flow Chart

- 1) Name of the person who made testing: Sky Shi/Aaron Wang/Winnie Zhang/Angell Yao
- 2) Name of the person in charge of testing: Cindy Yin/Rex Zhu
- 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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No. TSNEC1100135201

Date: 14 Apr 2011

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BEIJING HYSTIC NEW MATERIALS CO., LTD. 5 SHUANGYUAN ROAD, BADACHU HIGH-TECH ZONE, BEIJING. 100041, CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as: **EPOXY STRUCTURAL ADHESIVE**

SGS Job No.

1062747 - TJ

Composition

EPOXY RESIN

Model No.

EP608

Date of Sample Received

11 Apr 2011

Testing Period

11 Apr 2011 - 14 Apr 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).

Signed for and on behalf of SGS-CSTC Ltd.

Reabeca Zhou Approved Signatory

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No. TSNEC1100135201

Date: 14 Apr 2011

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Test Results:

ID for specimen 1 : TSN11-001352.001 Description for specimen 1 : light gray liquid

Halogen

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Fluorine (F)	mg/kg	EN 14582:2007, IC	65	50
Chlorine (CI)	mg/kg	EN 14582:2007, IC	8076	50
Bromine (Br)	mg/kg	EN 14582:2007, IC	96	50
lodine (I)	mg/kg	EN 14582:2007, IC	N.D.	50

Note:

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

Result shown is of the total weight of wet sample

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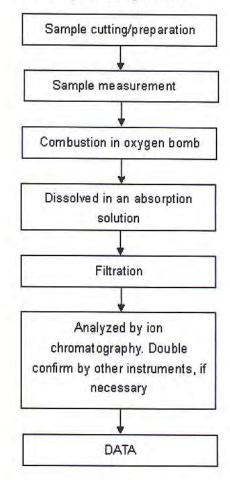
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ATTACHMENTS

Halogen Testing Flow Chart

- 1) Name of the person who made testing: Angell Yao
- 2) Name of the person in charge of testing: Rex Zhu



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No. SHAEC1116009838

Date: 14 Oct 2011

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ZHEJIANG ASIA GENERAL SOLDERING & BRAZING MATERIAL CO.,LTD
XIHU INDUSTRIAL PARK,SANDUN,HANGZHOU CITY,ZHEJIANG PROVINCE,CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as: LEAD-FREE SOLDER

WIRE

SGS Job No.: SP11-030781 - SH

Model No.: YTW102(692535-001,692535-002,692535-003)

Composition : Sn2.0CuRE

Date of Sample Received : 09 Oct 2011

Testing Period: 09 Oct 2011 - 13 Oct 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: 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.

Fan Jingjie, JJ Approved Signatory

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No. SHAEC1116009838

Date: 14 Oct 2011

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Test Results:

Test Part Description:

Specimen No. SGS Sample ID

Description

1

SHA11-160098.033

Silvery metal wire

Remarks:

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

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2011/65/EU

Test Method: With reference to IEC 62321:2008

(1) Determination of Cadmium by ICP-OES.

(2) Determination of Lead by ICP-OES.

(3) Determination of Mercury by ICP-OES.

(4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method using UV-Vis.

(5) Determination of PBBs / PBDEs by GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	MDL	033
Cadmium (Cd)	100	mg/kg 2		ND
Lead (Pb)	1,000	mg/kg	mg/kg 2	
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	\Diamond	Negative
Sum of PBBs	1,000	mg/kg		ND
Monobromobiphenyl	•	mg/kg	5	ND
Dibromobiphenyl	+	mg/kg	5	ND
Tribromobiphenyl	1 - 2	mg/kg	5	ND
Tetrabromobiphenyl		mg/kg	5	ND
Pentabromobiphenyl	(45)	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg 5		ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	1 2	mg/kgmg/kg		ND
Nonabromobiphenyl				ND
Decabromobiphenyl		mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	- 1	mg/kg	5	ND

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Test Report	No. SHAEC1116009838		Date: 14 Oct 2011		Page 3 of 5
Test Item(s)	Limit	<u>Unit</u>	MDL	<u>033</u>	
Dibromodiphenyl ether		mg/kg	5	ND	
Tribromodiphenyl ether	, P	mg/kg	5	ND	
Tetrabromodiphenyl ether	194.9	mg/kg	5	ND	
Pentabromodiphenyl ether	0.0	mg/kg	5	ND	
Hexabromodiphenyl ether	-	mg/kg	5	ND	
Heptabromodiphenyl ether		mg/kg	5	ND	
Octabromodiphenyl ether	w.	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.

For corrosion protection coatings on metals: 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

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No. SHAEC1116009838

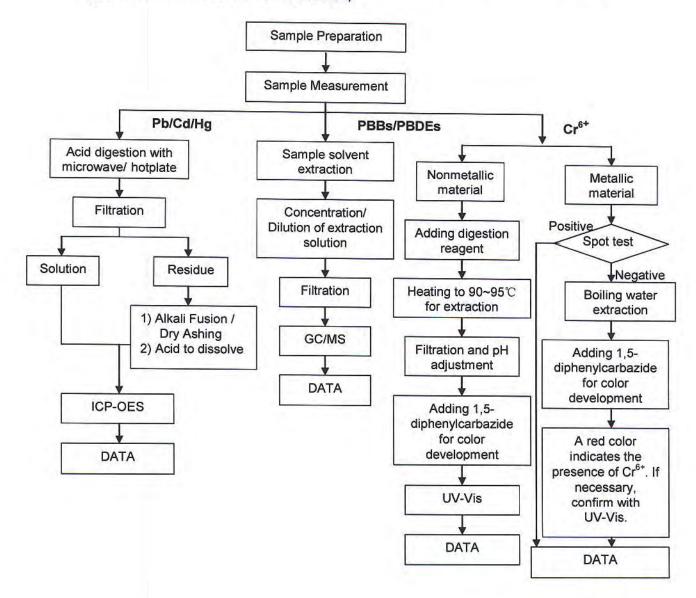
Date: 14 Oct 2011

Page 4 of 5

ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Jan Shi/Yoyo Wang/Allen Xiao/Gary Xu
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/ Elim Lin
- 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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No. SHAEC1018971802

Date: 06 Jan 2011

Page 1 of 4

DONGGUAN CITY XINHAI METAL PRODUCTS CO.,LTD.

1ST WEIMIN ROAD HENGZENG AV.XINAN COMMUNITY CHANGAN TOWN DONGGUAN CITY **GUANGDONG PROVINCE**

The following sample(s) was/were submitted and identified on behalf of the clients as: FUSE CAP

SGS Job No.: SP10-043287 - SH

Date of Sample Received: 30 Dec 2010

Testing Period: 30 Dec 2010 - 06 Jan 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).

Signed for and on behalf of SGS-CSTC Ltd.

Fan Jingjie, JJ Approved Signatory

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No. SHAEC1018971802

Date: 06 Jan 2011

Page 2 of 4

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description 1

SHA10-189718.002 Silver metal(base)

Remarks:

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

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2002/95/EC

Test Method: With reference to IEC 62321:2008

- (1) Determination of Cadmium by ICP-OES.
- (2) Determination of Lead by ICP-OES.
- (3) Determination of Mercury by ICP-OES.
- (4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method using UV-Vis.

Test Item(s)	<u>Limit</u>	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	15
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	\Diamond	Negative

Notes:

- (1) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC
- (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.

For corrosion protection coatings on metals: 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.

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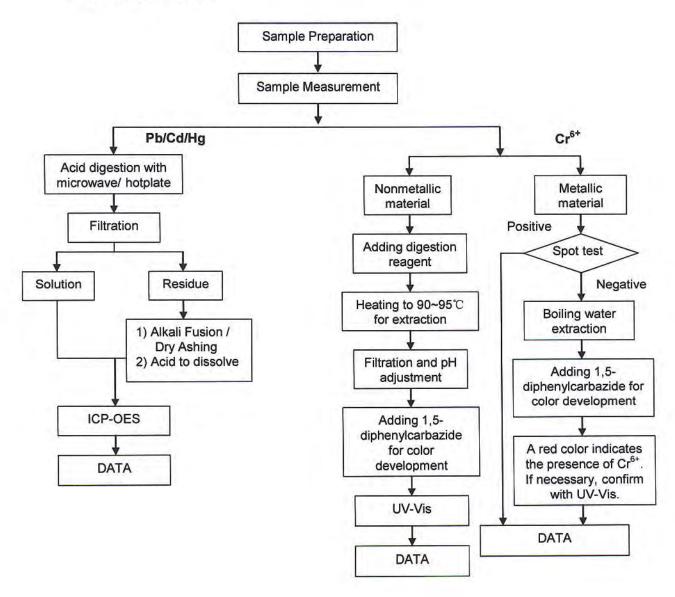
Date: 06 Jan 2011

Page 3 of 4

ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Allen Xiao/ Wesley Wei / Andy Zhao
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu
- These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)



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Date: 06 Jan 2011

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Test Report No. SHAEC1018971801 Date: 06 Jan 2011 Page 1 of 4

DONGGUAN CITY XINHAI METAL PRODUCTS CO.,LTD.

1ST WEIMIN ROAD HENGZENG AV.XINAN COMMUNITY CHANGAN TOWN DONGGUAN CITY GUANGDONG PROVINCE

The following sample(s) was/were submitted and identified on behalf of the clients as: FUSE CAP

SGS Job No.: SP10-043287 - SH

Date of Sample Received: 30 Dec 2010

Testing Period: 30 Dec 2010 - 06 Jan 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).

Signed for and on behalf of SGS-CSTC Ltd.

Fan Jingjie, JJ Approved Signatory

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No. SHAEC1018971801

Date: 06 Jan 2011

Page 2 of 4

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description

SHA10-189718.001 Silver metal(plating)

Remarks:

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

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2002/95/EC

Test Method: (1)IEC 62321:2008 application of modified digestion by surface etching for Cadmium, Lead and Mercury, analysis by ICP-OES

(2) With reference to IEC 62321:2008 for Hexavalent Chromium by spot test / Colorimetric Method.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	MDL	001
Lead (Pb)	1,000	mg/kg	10	ND
Cadmium (Cd)	100	mg/kg	10	ND
Mercury (Hg)	1,000	mg/kg	10	ND
Hexavalent Chromium (CrVI)	÷	-	\Diamond	Negative

Notes:

- (1) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC
- (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.

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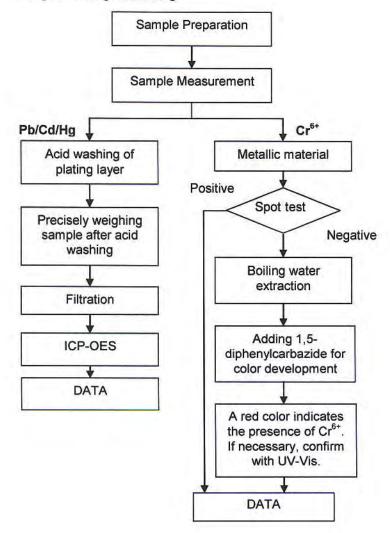
Date: 06 Jan 2011

Page 3 of 4

ATTACHMENTS

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

- 1) Name of the person who made testing: Wesley Wei
- 2) Name of the person in charge of testing: Jeff Zhang



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No. SHAEC1018971801

Date: 06 Jan 2011

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No.: GZ1106081316/CHEM

Date: JUN 24, 2011

Page 1 of 4

XIAMEN LICHUN ELECTRONIC ELEMENT CO., LTD 42-2 XINGLIN WEST RD, 361002 JIMEI DISTRICT, XIAMEN FUJIAN, P.R.C.

The following sample(s) was/were submitted and identified on behalf of the applicant as BOSI GLASS TUBE

SGS Job No.

: XM13205987EC

SGS Internal Reference No.

: 2.2

Date of Sample Received

: JUN 23, 2011

Testing Period

: JUN 23, 2011 TO JUN 24, 2011

Test Requested

: Selected test (s) as requested by client.

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 Ltd.

Jenny Jiang

Approved Signatory

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Member of the SGS Group (SGS SA)



No.: GZ1106081316/CHEM

Date: JUN 24, 2011

Page 2 of 4

Test Results:

Description for specimen 1 : Transparent glass tube

RoHS Directive 2002/95/EC

Cadmium (Cd)	Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
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 lEC 62321: 2008, UV-Vis N.D. 2 1000 Sum of PBBs mg/kg IEC 62321: 2008, GC-MS N.D. 5 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 Hexabromobiphenyl 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 Nonabromobiphenyl mg/kg IEC 62321: 2008, GC-MS N.D. 5 Nonabromodiphenyl mg/kg IEC 62321: 2008, GC-MS N.D. <t< td=""><td></td><td>mg/kg</td><td>IEC 62321: 2008, ICP-OES</td><td>ND</td><td>2</td><td>100</td></t<>		mg/kg	IEC 62321: 2008, ICP-OES	ND	2	100
Mercury (Hg)		mg/kg				
Hexavalent Chromium (CrVI) by alkatine extraction						
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Nonabromodiphenyl ether mg/kg IEC 62321: 2008, GC-MS N.D. 5 Decabromodiphenyl ether mg/kg IEC 62321: 2008, GC-MS N.D. 5		and the second s			5	
Decabromodiphenyl ether mg/kg IFC 62321: 2008, GC-MS N.D. 5					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

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No.: GZ1106081316/CHEM

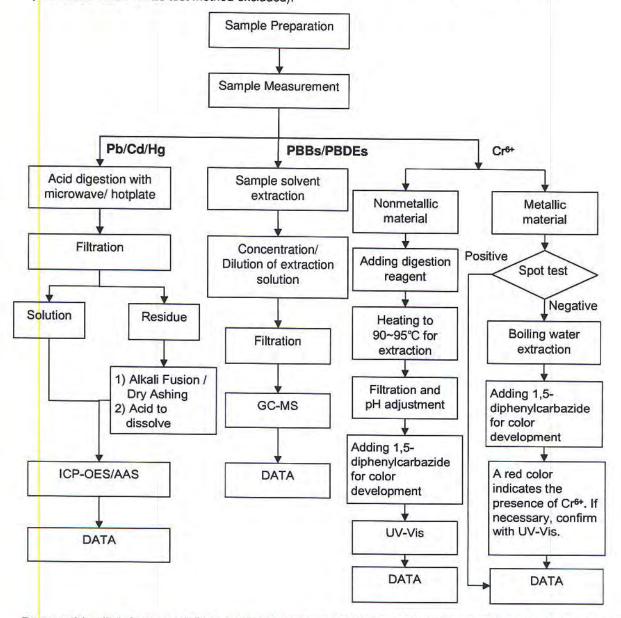
Date: JUN 24, 2011

Page 3 of 4

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).



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Spandards Technical Mass Co., Ltd.



No.: GZ1106081316/CHEM

Date: JUN 24, 2011

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Sample photo:



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Co. Lin | 19

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TEST REPORT

NUMBER: SHAH00251051

APPLICANT: LITTELFUSE, INC.

DATE: APR 13, 2011

800 E. NORTHWEST HWY

ATTN: A. CESISTA/ K. BACILA

SAMPLE DESCRIPTION:

One(1) submitted sample said to be White yarn.

Part Description : Yarn.

Part Number : 648106-001.

Date Sample Received : Apr.7, 2011.

Date Test Started : Apr.7, 2011.

TESTS CONDUCTED:

TO BE CONTINUED

PREPARED AND CHECKED BY: FOR INTERTEK TESTING SERVICES LTD., SHANGHAI

my

MYRA LV CHEMICAL LAB SENIOR MANAGER AUTHORIZED BY:

FOR INTERTEK TESTING SERVICES

LTD., SHANGHAI

STEPHEN TSANG GENERAL MANAGER



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TEST REPORT NUMBER: SHAH00251051

TESTS CONDUCTED

(I) Test Result Summary:

Testing Item	Result (ppm)
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr ⁶⁺) content	ND
Polybrominated Biphenyls (PBBs)	·
Monobrominated Biphenyls (MonoBB)	ND
Dibrominated Biphenyls (DiBB)	ND
Tribrominated Biphenyls (TriBB)	ND
Tetrabrominated Biphenyls (TetraBB)	ND
Pentabrominated Biphenyls (PentaBB)	ND
Hexabrominated Biphenyls (HexaBB)	ND
Heptabrominated Biphenyls (HeptaBB)	ND
Octabrominated Biphenyls (OctaBB)	ND
Nonabrominated Biphenyls (NonaBB)	ND
Decabrominated Biphenyl (DecaBB)	ND
Polybrominated Diphenyl Ethers (PBDEs)	
Monobrominated Diphenyl Ethers (MonoBDE)	ND
Dibrominated Diphenyl Ethers (DiBDE)	ND
Tribrominated Diphenyl Ethers (TriBDE)	ND
Tetrabrominated Diphenyl Ethers (TetraBDE)	ND
Pentabrominated Diphenyl Ethers (PentaBDE)	ND
Hexabrominated Diphenyl Ethers (HexaBDE)	ND
Heptabrominated Diphenyl Ethers (HeptaBDE)	ND
Octabrominated Diphenyl Ethers (OctaBDE)	ND
Nonabrominated Diphenyl Ethers (NonaBDE)	ND
Decabrominated Diphenyl Ether (DecaBDE)	ND



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TEST REPORT

NUMBER: SHAH00251051

TESTS CONDUCTED

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	ND
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

Responsibility Of Chemist : Dent Fang / Ken He

(II) RoHS Requirement:

Restricted Substances	<u>Limits</u>
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)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ehters (PBDEs)	0.1% (1000ppm)

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



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TEST REPORT

NUMBER: SHAH00251051

TESTS CONDUCTED

(III) Test Method:

Testing Item	Testing 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 C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Halogen Content	With reference to EN 14582:2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

Date Sample Received

: APR.7, 2011 : APR.7, 2011 TO APR.11, 2011 Testing Period



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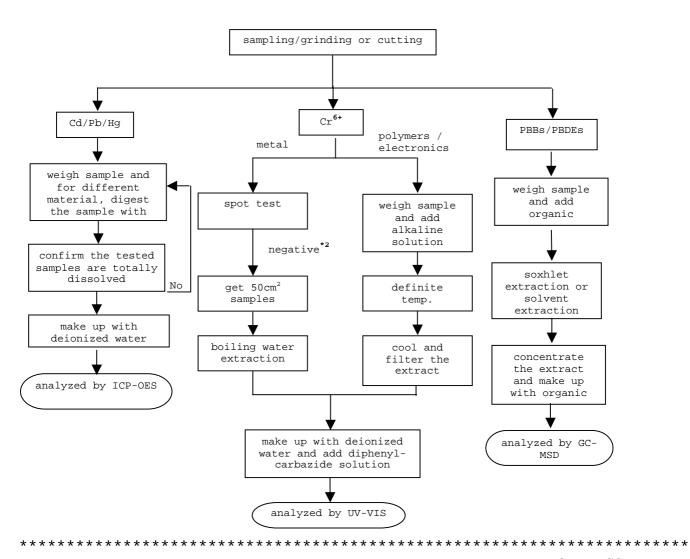
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TEST REPORT NUMBER: SHAH00251051

TESTS CONDUCTED

(IV) Measurement Flowchart:

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





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TEST REPORT

NUMBER: SHAH00251051

TESTS CONDUCTED REMARKS:

*1: List of appropriate acid:

<u>Material</u>	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals	HNO3,HCl,HF
Electronics	HNO _{3,} HCl,H ₂ O ₂ ,HBF ₄

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



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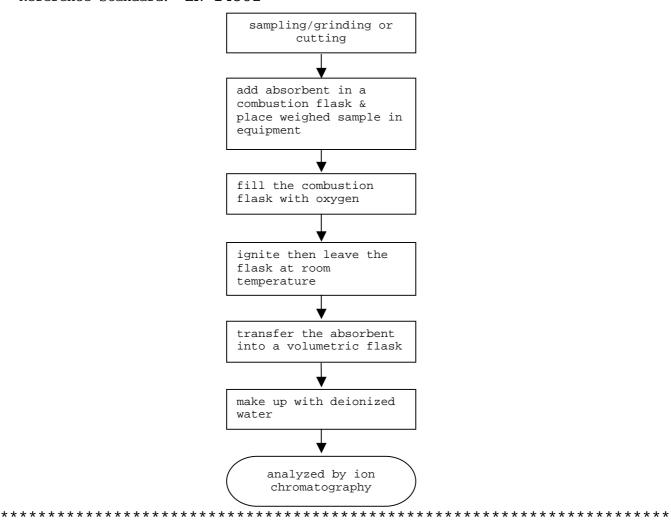
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Test For Halogen Content Reference Standard: EN 14582





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NUMBER: SHAH00251051

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TESTS CONDUCTED



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Shanghai, China, 200233 Tel: +86 21 6120 6565 Fax: +86 21 6127 9740

E-mail: labtest.shanghai@intertek.com

NUMBER: SHAH00240565

DATE: JAN 25, 2011

www.intertek.com www.intertek.com.cn

China Toll-Free: 800 999 1338

TEST REPORT

APPLICANT: LITTELFUSE, INC.

800 E. NORTHWEST HWY

ATTN: A. CESISTA/ K. BACILA

SAMPLE DESCRIPTION:

One(1) submitted sample said to be White yarn.

Part Description : Yarn.
Part Number : 648115.

Date Sample Received : Jan.20, 2011.
Date Test Started : Jan.20, 2011.

TESTS CONDUCTED:

TO BE CONTINUED

PREPARED AND CHECKED BY: FOR INTERTEK TESTING SERVICES LTD., SHANGHAI

my

MYRA LV CHEMICAL LAB SENIOR MANAGER AUTHORIZED BY:

FOR INTERTEK TESTING SERVICES LTD., SHANGHAI

STEPHEN TSANG

GENERAL MANAGER



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TEST REPORT NUMBER: SHAH00240565

TESTS CONDUCTED

(I) Test Result Summary:

Testing Item	Result (ppm)
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr ⁶⁺) content	ND
Polybrominated Biphenyls (PBBs)	•
Monobrominated Biphenyls (MonoBB)	ND
Dibrominated Biphenyls (DiBB)	ND
Tribrominated Biphenyls (TriBB)	ND
Tetrabrominated Biphenyls (TetraBB)	ND
Pentabrominated Biphenyls (PentaBB)	ND
Hexabrominated Biphenyls (HexaBB)	ND
Heptabrominated Biphenyls (HeptaBB)	ND
Octabrominated Biphenyls (OctaBB)	ND
Nonabrominated Biphenyls (NonaBB)	ND
Decabrominated Biphenyl (DecaBB)	ND
Polybrominated Diphenyl Ethers (PBDEs)	·
Monobrominated Diphenyl Ethers (MonoBDE)	ND
Dibrominated Diphenyl Ethers (DiBDE)	ND
Tribrominated Diphenyl Ethers (TriBDE)	ND
Tetrabrominated Diphenyl Ethers (TetraBDE)	ND
Pentabrominated Diphenyl Ethers (PentaBDE)	ND
Hexabrominated Diphenyl Ethers (HexaBDE)	ND
Heptabrominated Diphenyl Ethers (HeptaBDE)	ND
Octabrominated Diphenyl Ethers (OctaBDE)	ND
Nonabrominated Diphenyl Ethers (NonaBDE)	ND
Decabrominated Diphenyl Ether (DecaBDE)	ND



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TEST REPORT

NUMBER: SHAH00240565

TESTS CONDUCTED

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	ND
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

Responsibility Of Chemist : Dent Fang / Ken He

(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)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ehters (PBDEs)	0.1% (1000ppm)

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



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TEST REPORT NUMBER: SHAH00240565

TESTS CONDUCTED

(TTT) Test Method:

<u>(III) Test Method:</u>		
Testing Item	Testing 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 C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

: JAN.20, 2011 TO JAN.24, 2011



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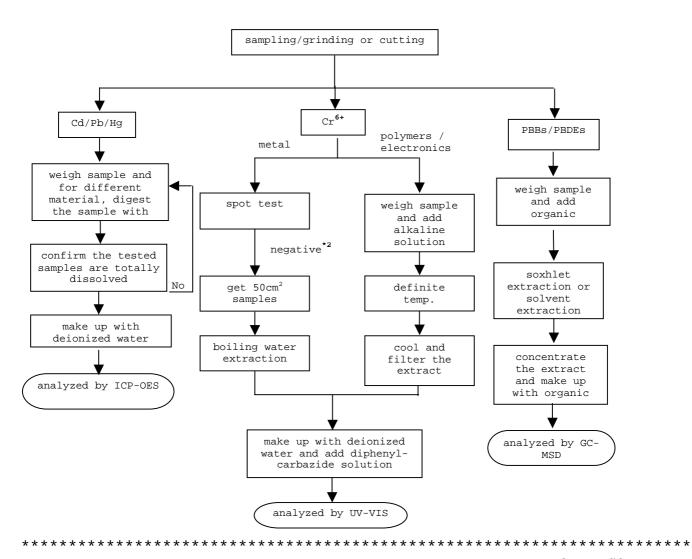
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TEST REPORT

TESTS CONDUCTED

(IV) Measurement Flowchart:

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





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TEST REPORT

NUMBER: SHAH00240565

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

<u>Material</u>	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals	HNO3,HCl,HF
Electronics	HNO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

*********************** TO BE CONTINUED



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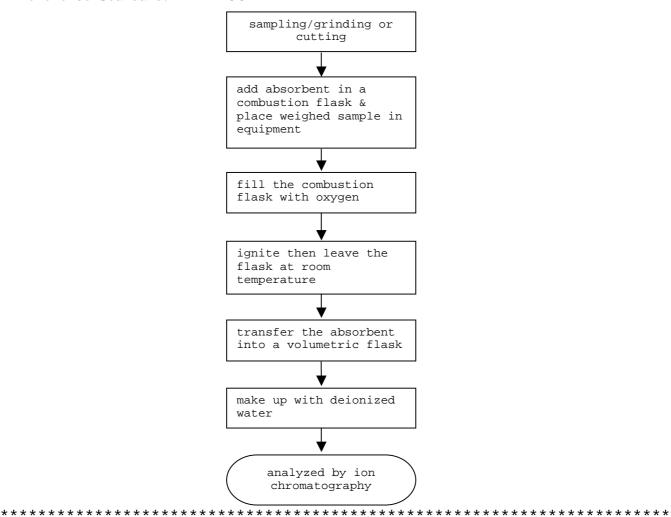
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Test For Halogen Content Reference Standard: EN 14582





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TEST REPORT

TESTS CONDUCTED



END OF REPORT



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Test Report

No.: CE/2011/B4950

Date: 2011/12/01

Page: 1 of 7

POLYFIL AG

OBERALLMENDSTRASSE 20A, CH-6300 ZUG / SWITZERLAND

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

Sample Description

: Cu99.9MSn

Buyer/Order No.

: 11-0595

Sample Receiving Date

: 2011/11/25

Testing Period

: 2011/11/25 TO 2011/12/01

Test Result(s)

: Please refer to next page(s).



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No.: CE/2011/B4950

Date: 2011/12/01

Page: 2 of 7

POLYFIL AG

OBERALLMENDSTRASSE 20A, CH-6300 ZUG / SWITZERLAND

Test Result(s)

PART NAME No.1

: SILVER COLORED METAL WIRE (INCLUDING THE PLATING LAYER)

Toot Itom(a)	Unit	Method	MDL	Result
Test Item(s)				No.1
Cadmium (Cd)	mg/kg		2	n.d.
Lead <mark>(</mark> Pb)	mg/kg	With reference to IEC 62321: 2008 and	2	24
Mercu <mark>r</mark> y (Hg)	mg/kg	performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI)	**	With reference to IEC 62321: 2008 and performed by Boiling water extraction Method.#	#	Negative
Sum of PBBs		With reference to IEC 62321: 2008 and performed by GC/MS.	1.47	n.d.
Mono <mark>b</mark> romobiphenyl			5	n.d.
Dibro <mark>m</mark> obiphenyl			5	n.d.
Tribromobiphenyl			5	n.d.
Tetrabromobiphenyl			5	n.d.
Pentabromobiphenyl			5	n.d.
Hexa <mark>b</mark> romobiphenyl			5	n.d.
Heptabromobiphenyl			5	n.d.
Octab <mark>romobiphenyl</mark>			5	n.d.
Nona <mark>b</mark> romobiphenyl			5	n.d.
Deca <mark>b</mark> romobiphenyl	malka		5	n.d.
Sum of PBDEs	mg/kg		-	n.d.
Monopromodiphenyl ether			5	n.d.
Dibromodiphenyl ether			5	n.d.
Tribromodiphenyl ether			5	n.d.
Tetrabromodiphenyl ether			5	n.d.
Pentabromodiphenyl ether			5	n.d.
Hexabromodiphenyl ether			5	n.d.
Heptabromodiphenyl ether			5	n.d.
Octabromodiphenyl ether			5	n.d.
Nonabromodiphenyl ether			5	n.d.
Decapromodiphenyl ether			5	n.d.

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POLYFIL AG
OBERALLMENDSTRASSE 20A, CH-6300 ZUG / SWITZERLAND

Test Item(s)	Unit	Method	MDL	Result
				No.1
Halogen		T a sale of the sa		
Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
Halogen-Chlorine (CI) (CAS No.: 22537-15-1)			50	n.d.
Halogen-Bromine (Br) (CAS No.: 10097-32-2)			50	n.d.
Halog <mark>en-lodine (I)</mark> (CAS No.: 14362-44-8)			50	n.d.

Note

- mg/kg = ppm ; 0.1wt% = 1000ppm
- 2. n.d. = Not Detected
- 3. MDL = Method Detection Limit
- 4. " " = Not Regulated
- 5. ** = Qualitative analysis (No Unit)
- 6. # = a. Positive means the presence of CrVI on the tested areas
 - b. Negative means the absence of CrVI on the tested areas

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² tested areas.

7. 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.

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Test Report Page: 4 of 7 Date: 2011/12/01 No.: CE/2011/B4950 POLYFIL AG OBERALLMENDSTRASSE 20A, CH-6300 ZUG / SWITZERLAND 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: Climbgreat Yang 3) Name of the person in charge of measurement: Troy Chang Cutting / Preparation Sample Measurement Hg Pb · Cd Acid digestion by suitable acid Microwave digestion with Add appropriate amount depended on different sample HNO₃/HCI/HF digestion reagent material (as below table) Filtration Heat to appropriate temperature to extract Residue Solution Cool, filter digestate Alkali Fusion through filter HCI to dissolve ICP-AES Add diphenyl-carbazide for color development Digestion Acid Sample Material Agua regia, HNO₃, HCl, HF, H₂O₂ Steel, copper, aluminum, solder measure the absorbance HNO₃/HF Glass at 540 nm by UV-VIS Gold, platinum, palladium, ceramic Aqua regia HNO₃ Silver H₂SO₄, H₂O₂, HNO₃, HCI Plastic Any acid to total digestion Others

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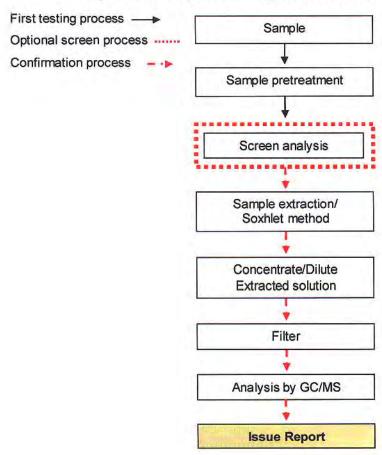
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POLYFIL AG OBERALLMENDSTRASSE 20A, CH-6300 ZUG / SWITZERLAND



PBB/PBDE analytical FLOW CHART

- 1) Name of the person who made measurement: Roman Wong
- 2) Name of the person in charge of measurement: Troy Chang



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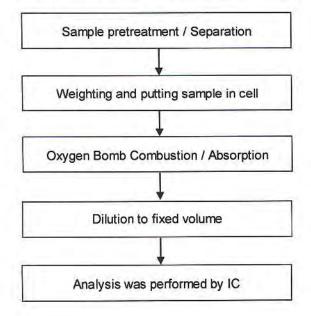
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POLYFIL AG OBERALLMENDSTRASSE 20A, CH-6300 ZUG / SWITZERLAND

Analytical flow chart of halogen content

- 1) Name of the person who made measurement: Rita Chen
- 2) Name of the person in charge of measurement: Troy Chang



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* The tested sample / part is marked by an arrow if it's shown on the photo. *

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** End of Report **

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