

Company name:

Product Series:

ICP Test Report Certification Packet

Littelfuse, Inc.

2AG Glass Body Fuse

Product #:	209xxx Series	
Issue Date:	August 28, 2014	
restricted substance nor a materials, and for additive In addition, it is hereby re	such use, for materials es and the like in the morted to you that the proceeding materials, a	parts and sub-materials, the materials to be used and the additives and the like in the manufacturing
	Issued by:	JORDANUFF H. CABILAN [Global EHS Engineer]
(1) Parts, sub-materials a This document co manufactured by Li	vers the 2AG Glass	s Body Fuse RoHS-Compliant series products
< Raw Materials U		
(2) The ICP data on all I	measurable substance propriate pages as iden	
Remarks : .		



Table 1: List of Raw Materials covered by this report

ICP ID	Raw Material Part Number	Raw Material Description	Page(s)	Part Number
ICP-0094	087244	HMA Adhesive	3-11	0209007.MXEP 020903.5MXP 0209004.MXP 0209005.MXP
ICP-0057	692535-001	Solder	12-17	0209007.MXEP 020903.5MXP 0209004.MXP 0209005.MXP
ICP-0184	648106-001	Yarn	18-25	020903.5MXP 0209004.MXP 0209005.MXP
ICP-0061	648115	Yarn	26-31	0209007.MXEP
ICP-0294	082xxx-001	Element - Cu99.9MSn	32-35	0209007.MXEP 020903.5MXP 0209004.MXP 0209005.MXP
ICP-0053	C909-367-001	Body	36-40	0209007.MXEP 020903.5MXP 0209004.MXP 0209005.MXP
ICP-0239	082xxx	Wire - Cu CDA 102 Sn Plated	41-46	0209007.MXEP 020903.5MXP 0209004.MXP 0209005.MXP
ICP-0099	910-537-3	Cap plating	47-50	0209007.MXEP 020903.5MXP 0209004.MXP 0209005.MXP
ICP-1439	910-537	Cap Base	51-55	0209007.MXEP 020903.5MXP 0209004.MXP 0209005.MXP



Test Report No. CANEC1319947701 Date: 23 Dec 2013 Page 1 of 5

LITTELFUSE PHILIPPINES INC. LIMA TECHNOLOGY CENTER, LIPA CITY, MALVAR, BATANGAS

This report is to supersede test report CANEC1318569201

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

SGS Job No. : CP13-065561 - GZ

Model No.: 3779Q

Client Ref. Info. : 3779Q, 3779PG Date of Sample Received : 28 Nov 2013

Testing Period: 28 Nov 2013 - 03 Dec 2013

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.

Alkene_Liang

Approved Signatory

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Test Report No. CANEC1319947701 Date: 23 Dec 2013 Page 2 of 5

Test Results:

<u>Test Part Description:</u>

Specimen No. SGS Sample ID Description

SN1 CAN13-199477.001 Dk-yellow transparent rod

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: (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) With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric

Method using UV-Vis.

(5) With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
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	-	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
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	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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Test Report	No. CANEC13199477	01	Date: 2	23 Dec 2013	Page 3 of 5
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>	
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 the directive 2011/65/EU, Annex II

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No. CANEC1319947701

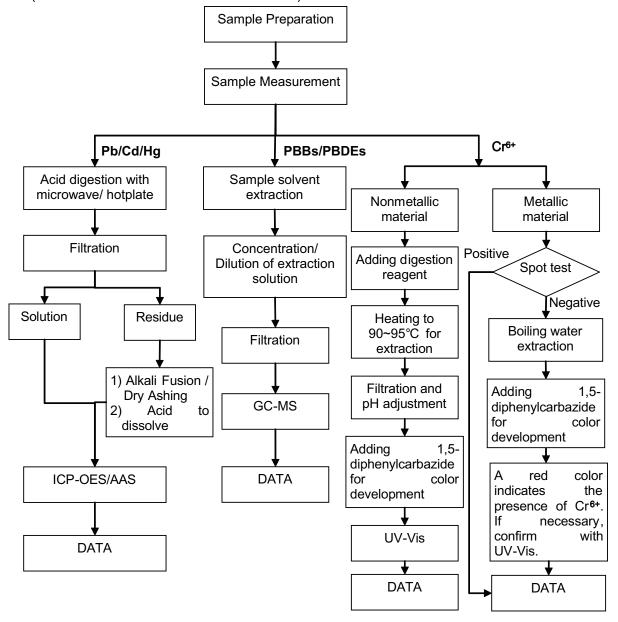
Date: 23 Dec 2013

Page 4 of 5

ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Michael Tso / Cutey Yu
- 2) Name of the person in charge of testing: Adams Yu / Yolanda Wei
- 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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Date: 23 Dec 2013

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Sample photo:



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Test Report No. CANEC1319947702 Date: 20 Dec 2013 Page 1 of 4

LITTELFUSE PHILIPPINES INC. LIMA TECHNOLOGY CENTER, LIPA CITY, MALVAR, BATANGAS

This report is to supersede test report CANEC1318569202

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

SGS Job No. : CP13-065561 - GZ

Model No.: 3779Q

Client Ref. Info. : 3779Q, 3779PG Date of Sample Received : 28 Nov 2013

Testing Period: 28 Nov 2013 - 03 Dec 2013

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.

Alice,Luo

Approved Signatory

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Test Report No. CANEC1319947702 Date: 20 Dec 2013 Page 2 of 4

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description

SN1 CAN13-199477.001 Dk-yellow transparent rod

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>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
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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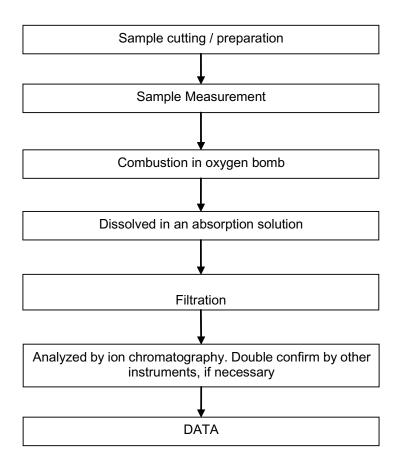
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ATTACHMENTS

Halogen Testing Flow Chart

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



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Date: 20 Dec 2013

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Sample photo:



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Test Report No. SHAEC1414529309 Date: 04 Aug 2014 Page 1 of 6

LITTELFUSE PHILIPPINES INC. LIMA TECHNOLOGY CENTER, LIPA CITY, MALVAR, BATANGAS

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

SGS Job No.: SP14-022587 - SH

Model No.: YTW108(692535-001、692535-003、692535-004)

Composition: Sn3.0CuRE Date of Sample Received: 31 Jul 2014

Testing Period: 31 Jul 2014 - 04 Aug 2014

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.

Marry Ma

Approved Signatory



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Test Report No. SHAEC1414529309 Date: 04 Aug 2014 Page 2 of 6

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description

SN1 SHA14-145293.042 Silvery metal wire with white solid (mix all*)

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: (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) With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.

(5) With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>042</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	15
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	2	ND
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
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



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Test Report	No. SHAEC14145293	09	Date: (04 Aug 2014	Page 3 of 6
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>042</u>	
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

<u>Halogen</u>

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

<u>Unit</u>	<u>MDL</u>	<u>042</u>
mg/kg	50	ND
mg/kg	50	402
mg/kg	50	ND
mg/kg	50	ND
	mg/kg mg/kg mg/kg	mg/kg 50 mg/kg 50 mg/kg 50

Remark: *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 and only for reference.



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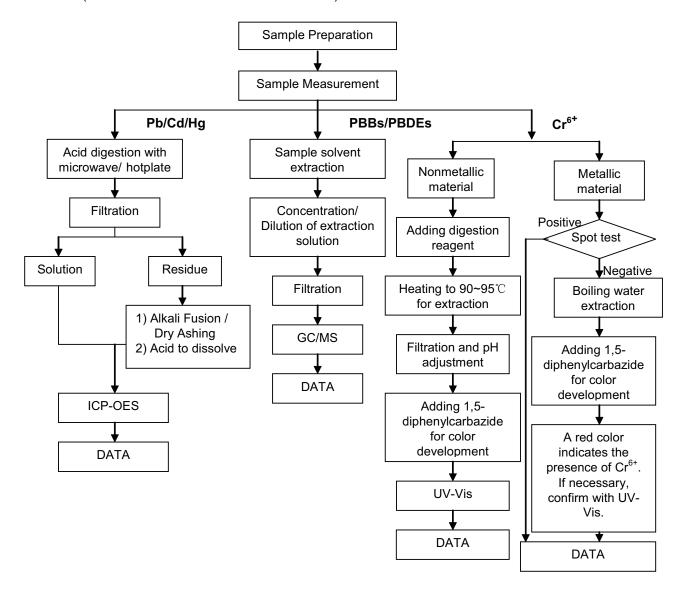


Test Report No. SHAEC1414529309 Date: 04 Aug 2014 Page 4 of 6

ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Jan Shi/Star Wang/Stone Chen/Gary Xu
- 2) Name of the person in charge of testing: Jeff Zhang/ Jessy Huang
- 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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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CND.Doccheck@sgs.com

3rdBuilding,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 

No. SHAEC1414529309

Date: 04 Aug 2014

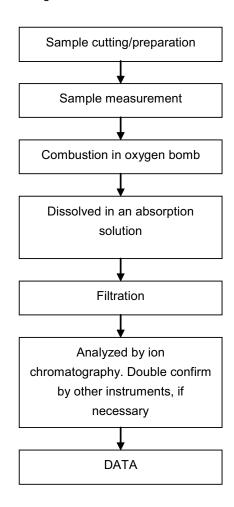
Page 5 of 6

ATTACHMENTS

Halogen Testing (oxygen bomb) Flow Chart

1) Name of the person who made testing: Sisily Yin

2) Name of the person in charge of testing: Linda Li





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Date: 04 Aug 2014

Page 6 of 6

Sample photo:



SGS authenticate the photo on original report only

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: TWNC00340082 Number

Date : Nov 07, 2013

Littelfuse Philippines Inc. Applicant:

LIMA Technology Center, Lipa City,

Malvar, Batangas

Sample Description:

One (1) group of submitted samples said to be:

Part Description Yarn(648xxx) 648106-001 Part Number Date Sample Received Oct 30, 2013 **Date Test Started** Oct 31, 2013

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





Number:

TWNC00340082

Test Conducted

Test Result Summary:

Test Item	Unit	<u>Test Method</u>	<u>Result</u>	RL			
	Offic	<u>rest Method</u>	<u>Transparent yarn</u>	IXL			
Heavy Metal	Heavy Metal						
Cadmium (Cd) content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2			
Lead (Pb) content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2			
Mercury (Hg) content	ppm	With reference to IEC 62321-4: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2			
Chromium VI (Cr ⁶⁺) content	ppm	With reference to IEC 62321: 2008, by alkaline digestion and determined by UV-Vis Spectrophotometer.	ND	1			
Polybrominated Biphenyls	(PBBs)						
Monobrominated Biphenyls (MonoBB)	ppm		ND	5			
Dibrominated Biphenyls (DiBB)	ppm		ND	5			
Tribrominated Biphenyls (TriBB)	ppm		ND	5			
Tetrabrominated Biphenyls (TetraBB)	ppm	Mills reference to IFC (2221)	ND	5			
Pentabrominated Biphenyls (PentaBB)	ppm	With reference to IEC 62321: 2008, by solvent extraction	ND	5			
Hexabrominated Biphenyls (HexaBB)	ppm	and determined by GC-MS and further HPLC-DAD confirmation	ND	5			
Heptabrominated Biphenyls (HeptaBB)	ppm	when necessary.	ND	5			
Octabrominated Biphenyls (OctaBB)	ppm		ND	5			
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5			
Decabrominated Biphenyl (DecaBB)	ppm		ND	5			



Number: TWNC00340082

Test Conducted

Test Item	Unit	Test Method	<u>Result</u>	RL
<u>rest item</u>	Offic	<u>rest Method</u>	<u>Transparent yarn</u>	T KL
Polybrominated Diphenyl	Ethers (PBDEs)		•
Monobrominated Diphenyl Ethers (MonoBDE)	ppm		ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm	With reference to IEC 62221	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm	With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm		ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm		ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Halogen Content				
Fluorine (F)	ppm	With reference to EN	ND	50
Chlorine (CI)	ppm	14582:2007 by combustion bomb with oxygen and	ND	50
Bromine (Br)	ppm	determined by Ion	ND	50
Iodine (I)	ppm	Chromatography.	ND	50

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg

ND = Not detected

RL = Reporting limit, quantitation limit of analyte in sample

Responsibility of Chemist: Kevin Liu/ Irene Chiou/ Vico Lin

Date Sample Received : Oct 30, 2013

Test Period : Oct 31, 2013 to Nov 07, 2013

RoHS Limit

NOTS EITHE	
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 Ethers (PBDEs)	0.1% (1000ppm)

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.





Number: TWNC00340082

Test Conducted

Measurement Flowchart:

Test for Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Contents Reference Standard: Cd/Pb: IEC 62321-5:2013; Hg: IEC 62321-4:2013; Chromium (VI)/PBBs/PBDEs: IEC 62321:2008

Sample preparation For non-metal part For metal part Take sample and immerse into Aqua Regia, start to strip plating layer Stop the stripping procedure upon color change completely Take the Aqua solution as plating component and stripped body as substrate component **T** Cr**6+** PBBs/PBDEs Cd/Pb/Hg Substrate **Plating** Weigh sample and add Weigh sample and For different material, Cr⁶⁺ organic solvent add alkaline solution digest the sample with appropriate $\operatorname{acid}^{\mathbf{*1}}$ By spot test By solvent extraction Negative *2 Definite temp. Confirm the tested extraction samples are totally dissolved Get 50cm² sample Concentrate the extract Cool and filter the and make up with organic extract Make up with deionized solvent By boiling water water extraction Analyzed by GC-MS Analyzed by ICP-OES Make up with deionized water and add diphenyl-carbazide solution Remarks: *1: List of Appropriate Acid: Analyzed by UV-VIS Acid Added for Digestion Material HNO₃,HCl,HF,H₂O₂,H₃BO₃ Polymers Metals HNO₃,HCl,HF Electronics HNO3,HCI,H2O2,HBF4

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



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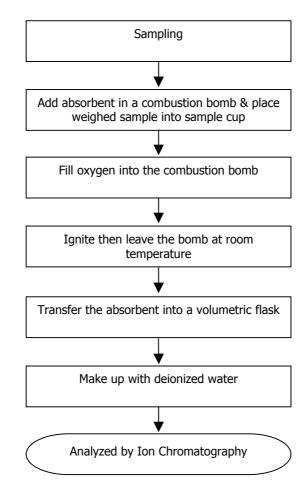


Number: TWNC00340082

Test Conducted

Measurement Flowchart:

Test for Halogen Contents Reference Method: EN 14582





TWNC00340082 Number:



End of Report

This report is made solely on the basis of your instructions and/or information and materials supplied by you. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and onlyaccepts liability to the Client insofar as is expressly contained in the terms and conditions governing Intertek's provision of services to you. Intertek makes nowarranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conductthe Review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct.



TWNC00340082 Number:

TERMS AND CONDITIONS OF BUSINESS

- Intertek Testing Services Taiwan Ltd. (hereinafter "the Company") agrees to provide its services in accordance with and subject to the terms and conditions herein contained (hereinafter "the Conditions"). The Conditions may only be modified by a variation expressed in writing and signed on behalf of the Company by a director 1. and no other action on the part of the Company or its employees or agents shall be construed as an acceptance of any other terms and conditions
- The Company acts for the person or body from whom the request to provide its services has originated (hereinafter "the Principal"). No other party is entitled to give instructions to the Company unless agreed by the Company.

 All rights (including but not limited to copyright) in any test reports, surveys, certificates of inspection or other material produced by the Company in the course of providing its services shall remain vested in the Company. The Principal shall not reproduce or make copies, publish or disclose the contents of any such material or extracts thereof to any third party without the Company's prior written consent, which may be refused at its discretion. The Principal further undertakes that its servants and agents shall keep confidential and shall not publish or otherwise use any information that may be acquired relating to the Company's activities.

 4.1 The Company undertakes to exercise due care and skill in the performance of its services and accepts responsibility only where such skill and care is not
- - The liability of the Company in respect of any claims for loss, damage or expense of whatsoever nature and howsoever arising in respect of any breach of contract and/or any failure to exercise due skill and care by the Company shall in no circumstances exceed a total aggregate sum equal to ten (10) times the amount of the fee or commission payable in respect of the specific service required under the particular contract with the Company which gives rise to such 4.2 claims provided however that the Company shall have no liability in respect of any claims for indirect or consequential loss including loss of profit and/or loss of future business and/or loss of production and/or cancellation of contracts entered into by the Principal.
 - 4.3 The Company shall not in any event be liable for any loss or damage caused by delay in performance or non-performance of any of its services where the same is occasioned by any cause whatsoever that is beyond the Company's control including but not limited to war, civil disturbance, requisitioning, governmental or parliamentary restriction, prohibitions or enactment of any kind, import or export regulations, strike or trade dispute (whether involving its own employees or those of any other person), difficulties in obtaining workmen or materials, breakdown of machinery, fire or accident. Should any such event occur the Company may cancel or suspend any contract for the provision of services without incurring any liability whatsoever.
 - The Company will not be liable to the Principal for any loss or damage whatsoever sustained by the Principal as a result of any failure by the Company to comply with any time estimate given by the Company relating to the provision of its services. [See clause 9.1] [See clause 9.2] 44
 - 4.5 The Principal acknowledges that samples may be damaged or destroyed in the course of testing carried out by the Company or any of the Company's agent or subcontractor as part of the necessary testing process and the Company shall not in any event be liable for any loss or damage arising from the damage or
 - destruction of the samples subject to testing.
 In the event that the Principal requests for the return of the samples, the Company shall not be responsible for any re-packaging of the samples prior to such 4 6 return and the Company shall in no circumstances be liable for any loss or damage caused to any of the samples during or as a result of their shipment to the Principal for the purpose of this Clause 4.6.
- 5 5.1 Subject to the Principal's instructions as accepted by the Company, the test reports, surveys, certificates of inspection or other material produced by the Company shall contain statements of opinion made with due care within the limitation of the instructions received by the Company. The Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received.

 For pre-shipment inspection or survey of goods, the Company's inspector shall perform the inspection or survey when goods are 100% completed, packed
 - 5.2 and marked (unless otherwise agreed between the Company and the Principal). Goods for inspection or survey shall be unpacked in the presence of the Company's inspector and inspection or survey shall, subject to Condition 5.3, take place at the place specified by the Principal.
 - If the Company's inspector finds that the location is not suitable for carrying out a proper inspection or survey of goods or where necessary equipment for inspection or survey is not available the inspector may, if practical in the circumstances, draw samples of goods from the location and carry out the inspection or survey at the premises of the Company. The Principal shall be responsible for all costs and expenses incurred in relation thereto. 5.3
 - Reports, surveys or certificates issued following testing or analysis of samples contain the Company's specific opinion on those samples only but do not express any opinion upon the bulk from which the samples were drawn. If an opinion on the bulk is requested special arrangements in writing must be made in advance with the Company's responsibility extend beyond inspection, 5.4 testing and reporting upon the samples actually drawn from the bulk and inspected, tested and surveyed by the Company and any inference to be drawn from the results of such inspection or survey or testing shall be entirely in the discretion and at the sole and exclusive responsibility of the Principal
- 6 The Company shall be entitled at its discretion to delegate the performance of the whole or any part of the services contracted for with the Principal to any agent or subcontractor
- Every officer, employee, agent or subcontractor of the Company shall have the benefit of the limitations of liability and the indemnities contained in the General Conditions. So far as relates to such limitations and indemnities, any contract entered into by the Company is entered into not only on its own behalf but also as
- agent and trustee for every such person as aforesaid.

 If the requirements of the Principal necessitate the analysis of samples by the Principal or by any third party the Company will pass on the results of the analysis but without responsibility for its accuracy. Where the Company is only able to witness an analysis by the Principal or by any third party the Company will provide confirmation, if such be the case, that a correct sample has been analysed but will not otherwise be responsible for the accuracy of such analysis.
- The Principal will:
 - 9.1 ensure that instructions to the Company are given in due time and are accompanied by sufficient information to enable the required services to be performed effectively:
 - 9.2 accept that documents reflecting arrangements or agreements made between the Principal and any third party, or third party documents such as copies of contracts of sale, letters of credit, bills of lading, etc. are -if received by the Company considered to be for information only, without extending or restricting the services to be provided or obligations accepted by the Company.
 - 9.3 procure all necessary access for the Company's representatives to enable the required services to be performed effectively.
 - 94
 - supply, if required, any special equipment and personnel necessary for the performance of the required services.
 ensure that all necessary measures are taken for safety and security of working conditions, sites and installations during the performance of the required



TWNC00340082 Number:

- take all necessary steps to eliminate or remedy any obstruction to or interruptions in the performance of the required services and repack all inspected goods immediately after any inspection or survey of them;
- inform the Company in advance of any known hazards or dangers, actual or potential, associated with any request for the provision of services by the Company including but not limited to the presence or risk of radiation, toxic or noxious or explosive elements or materials, environmental pollution or poisons;

10. The Principal shall guarantee, hold harmless and indemnify the Company and its officers, employees, agents or subcontractors against

- 10.1 all claims made by any third party for any loss, damage or expense of whatsoever nature and howsoever arising relating to the performance, purported performance or non-performance of any of services to the extent that the aggregate of any such claims relating to any one service exceeds the limit mentioned in Condition 4.2.
- 10.2 any loss or damage suffered by the Company as a result of the provision of services by the Company to the Principal otherwise than resulting from the Company's own error, negligence or wilful default.
- 11. 11.1 The Principal will punctually pay the Company immediately upon presentation of the relevant invoice or within such other period as may have been agreed in writing by the Company all charges rendered by the Company failing which interest will become due at the rate of 1.5 per cent per month from the date of invoice until payment. The Principal further agrees and undertakes to reimburse the Company all disbursements reasonably incurred in connection with the provision of its services.
 - 11.2 The Principal shall not be entitled to retain or defer payment of any sums due to the Company on account of any dispute, cross claim or set off which it may allege against the Company.
 - 11.3 In the event of any suspension of payment arrangement with creditors, bankruptcy, insolvency, receivership or cessation of business or failure of the Principal to pay part or all of any sums owing to the Company, the Company shall be entitled to suspend all further performance of its services and withhold the issue of any test report, survey, certificate of inspection or other material requested forthwith and without liability until payment of all sums owing to the Company together with interest thereon is made
- 12. Without prejudice to any rights the Company may have at law or under the Conditions, the Company has the following rights in the event of non-payment of sums owing to the Company as set out below.
 - The Company has a general and particular lien over all samples delivered to be tested for all claims and sums owing by the Principal to the Company under any contract whatsoever and in any other way whatsoever.
 - During the currency of any such lien the Company is entitled to be paid reasonable storage charges for samples retained in the Company's custody. 12.2
 - 12.3 Without prejudice to the Company's lien and other rights under Conditions 12.1 to 12.2 above, if test, inspection or survey of the goods takes place on the premises of the Company, the Company may give notice to the Principal that the goods (or any part thereof) are ready for collection and the Principal shall collect the same within three (3) calendar days (Saturdays, Sundays and Public Holidays excepted). Upon the expiry of this period, if the goods are not collected by the Principal, at the sole discretion of the Company the goods may be deemed abandoned and/or destroyed.
 - 12.4 Without prejudice to Conditions 12.3 above, the Company shall have the discretion to store the goods (or any of them) at their own premises or elsewhere at the Principal's expense if the Principal has deposited the goods at the Company's premises for the performance of these services and has subsequently failed to collect the said goods.
 - 12.5 The expenses by way of disbursements that the Company may reclaim from the Principal include all reasonable costs incurred by the Company (whether by way of storage, insurance or otherwise) in respect of the goods and it is expressly declared that it shall be reasonable but not mandatory for the Company to effect comprehensive insurance in respect of the goods
 - 12.6 Without prejudice to the Company's lien and other rights under Conditions 12.1 to 12.5 above, the risk and property in the goods shall remain at all times in the Principal
- 13. In the event of the Company being prevented by reason of any cause whatsoever outside the Company's control from performing or completing any service for which an order has been given or an agreement made, the Principal will pay to the Company:
 - 13.1 the amount of all abortive expenditure actually made or incurred; and
 - 13.2 a proportion of the agreed fee or commission equal to the proportion (if any) of the service actually carried out; and the Company shall be relieved of all responsibility whatsoever for the partial or total non-performance of the required service.
- 14. The Company shall be discharged from all liability to the Principal for all claims for loss, damage or expense unless suit is brought within twelve (12) months after the date of the performance by the Company of the service which gives rise to the claim or in the event of any alleged non-performance within twelve (12) months of the date when such service should have been completed.
- 15. In the event that any unforeseen additional time or costs are incurred in the course of carrying out any of its services the Company shall be entitled to render additional charges as shall reasonably reflect such additional time and costs incurred.
- 18. All contracts for provision of services by the Company and the Conditions shall be construed in accordance with and governed by the laws of the ROC and for the purpose of any arbitral or litigation proceedings such contracts shall be deemed to have been made and performed in Taiwan. If any provision contained in the Conditions is and/or becomes invalid, illegal or unenforceable in any respect under the laws of the ROC, the validity, legality and enforceability of the remaining
- provisions hereof shall not in any way be affected or impaired thereby.

 17. Any dispute or claim arising out of or relating to the provision of, or any agreement to provide, services by the Company shall be referred to and determined by arbitration subject to the Company's sole and overriding discretion to commence litigation proceedings in the courts of Taiwan or the courts of any other country as the Company may choose. The parties may agree to the appointment of an arbitrator failing which either party may, after having made a written request to concur in the appointment of an arbitrator, request the ROC Arbitration Association to appoint an arbitrator. The place of arbitration shall be in Taiwan. There shall only be



Number: 140100201SHA-004 **Test Report**

Applicant: LITTELFUSE, INC.

> 800 E. NORTHWEST HWY DES PLAINES, IL 60016

ATTN: J. CABILAN / A. CESISTA JR

Sample Description:

One (1) submitted sample said to be: White yarn Part Description Part Number 648115

Tests conducted:

As requested by the applicant, for details refer to attached page(s).

Conclusion:

Tested sample Result

Submitted sample Restriction of the use of certain hazardous substance in electrical Pass

and electronic equipment (RoHS Directive 2011/65/EU)

To be continued

Date: Jan. 15, 2014

Prepared and check by: For Intertek Testing Services Ltd., Shanghai

Authorized by: For Intertek testing services Ltd., Shanghai

Jonny Jing





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
Halogen Content	
Fluorine (F)	ND
Chlorine (CI)	ND
Bromine (Br)	ND
lodine (I)	ND

Remarks: ppm = parts per million = mg/kg

ND = not detected

Responsibility of Chemist: John Zeng / Leaf Liu

Date sample received: Jan. 07, 2014

Testing period: Jan. 07, 2014 To Jan. 09, 2014



Tests Conducted

(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 Ethers (PBDEs)	0.1% (1000ppm)

The above limits were quoted from RoHS Directive 2011/65/EU for homogeneous material.

(III) Test Method:

Testing Item	Testing Method	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321-5 Edition 1.0: 2013, by acid digestion until the tested sample was totally dissolved, and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321-5 Edition 1.0: 2013, by acid digestion until the tested sample was totally dissolved, and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321-4 Edition 1.0: 2013, by acid digestion until the tested sample was 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

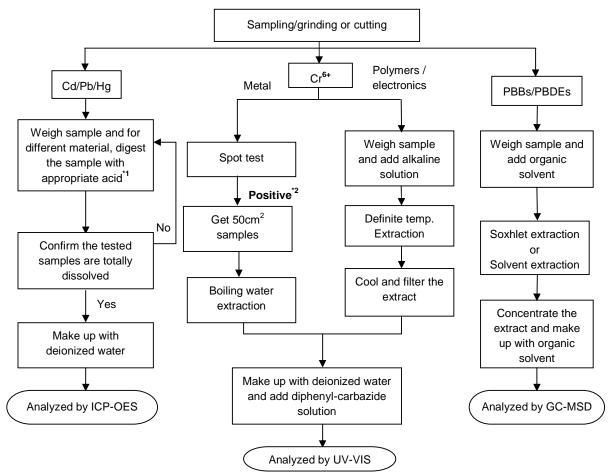
Remark: Reporting limit = Quantitation Limit of Analyze in Sample



Tests Conducted

(IV) Measurement Flowchart:

Test for Cd/ Pb/ Hg/Cr (VI)/ PBBs/PBDEs Contents Reference Standard: IEC 62321 Edition 1.0: 2008 & 2013



Remarks:

*1: List of appropriate acid:

'''		
MATERIAL	ACID ADDED FOR DIGESTION	
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃	
Metals	HNO _{3,} HCL,HF	
Electronics	HNO _{3,} HCL,H ₂ O _{2,} HBF ₄	

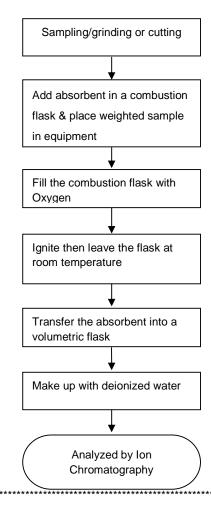
*2: If the result of spot test is positive, Chromium (VI) would be determined as detected.



Tests Conducted

(V) Measurement flowchart:

Test or Halogen content Reference standard: EN 14582





Tests Conducted



End of report

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Intertek Consumer Goods GmbH · Würzburger Straße 152 · 90766 Fürth · Germany

Littelfuse Philippines Inc.

Arsenio M. Cesista Jr. LIMA Technology Center, SEZ

4233 Malvar / Batangas

Fürth, 2013-12-17

Test report No. FUHLP2013-3898

Testing of a material sample according to the RoHS directive 2011/65/EC

Sample description: Cu99.9MSn

Arrival in lab: 2013-12-02; Period of analysis: 2013-12-04 - 2013-12-13 Head of Inorganic Lab: Claudia List

Copying this test report is permitted only in agreement with the contracted lab. The test results refer only to the tested item. This report consists of 6 page(s).

The test methods signed with * are not listed in the attachment of the accreditation certificate.

Conclusion based on tested item

Test order	Status
testing according to the RoHS directive 2011/65/EC	pass°

Please see overview of test results

- Test results see next pages -





Page 2 of 4 page(s) of our test report No. FUHLP2013-3898 dated 17.12.2013

Sample description: Cu99.9MSn

nM = non Metal M = Metal cM = composite Material

List of component parts:

Sample No.	Part No.	Material	Description
334031	1	М	Tinned copper wire

Photo:



Sample No. 334031 Part No. 1

Analysis of metals by ICP-MS, results in mg/kg

Method: Pb, Cd, Cr: DIN EN ISO 17294-2**

Digestion: with conc. HNO₃ + HCI**

Detection limit: Pb 5.0 mg/kg, Cd 1.0 mg/kg, Cr 10 mg/kg, Hg: 0.5 mg/kg

Sample No.	Part No.	Pb	Hg	Cd	Cr _{total}
334031	1	50	<0.5	<1.0	<10

Status		
pass		

Comment:

Elements	RoHS-limit value
Lead (Pb)	1000 mg/kg
Mercury (Hg)	1000 mg/kg
Cadmium (Cd)	100 mg/kg
Chromium VI (Cr VI)	1000 mg/kg
Polybrominated Biphenyle (PBBs)	1000 mg/kg
Polybrominated Diphenyl ether (PBDEs)	1000 mg/kg

Intertek Consumer Goods GmbH

Prüfleitung / Lab Manager

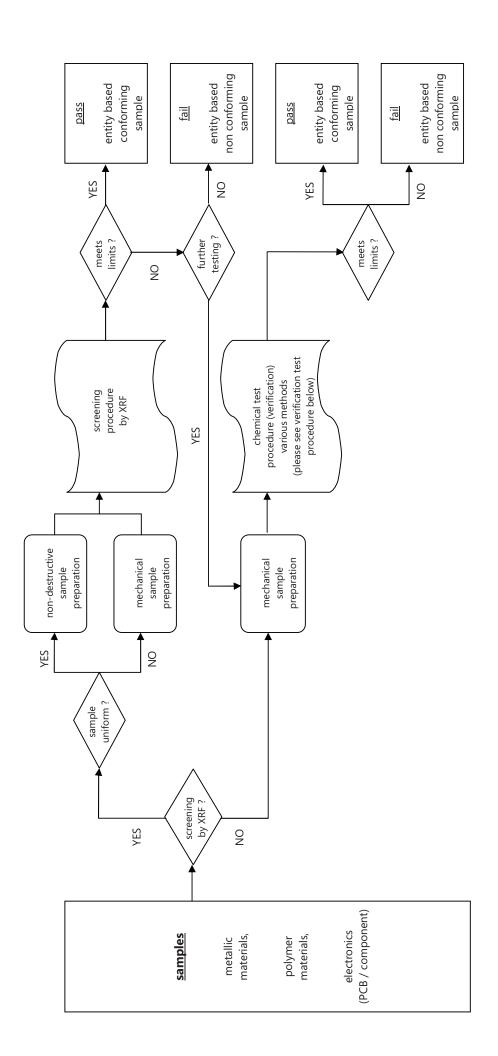
□ A. Breunig, □ K. Grönhardt, □ Dr. K. Laue-Schuler,
□ R. Micolay, □ M. Neumeister, □ Dr. R. Rätze, □ K. Scharrer, □ M. Tutsch

- Flow charts see next page(s) -



Page 3 of 4 page(s)

Test procedure



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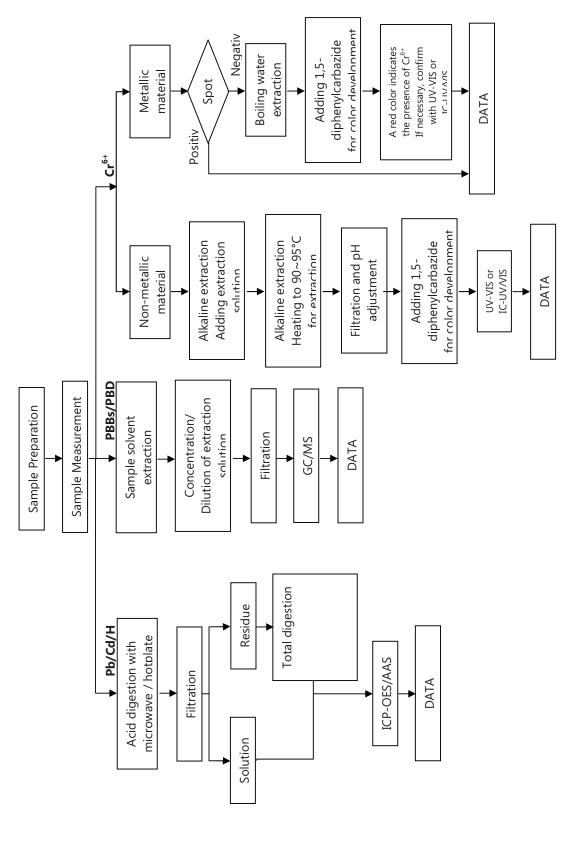
Sitz Fürth Amtsgericht Fürth, HRB 5756 Ust-IdNr. DE169317871

Geschäftsführer Kay Grönhardt Jan-Jörg Müller-Seiler



Page 4 of 4 page(s)

Verification test procedure



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Sitz Fürth Amtsgericht Fürth, HRB 5756 Ust-IdNr. DE169317871

Kay Grönhardt Jan-Jörg Müller-Seiler Geschäftsführer



Test Report No. XMNEC1400132001 Date: 23 Jun 2014 Page 1 of 5

LITTELFUSE PHILIPPINES INC. LIMA TECHNOLOGY CENTER, LIPA CITY, MALVAR, BATANGAS

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

SGS Job No.: XM15415164EC - XM

Date of Sample Received: 16 Jun 2014

Testing Period: 16 Jun 2014 - 23 Jun 2014

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 (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 Ltd.

nichael

Michael Tso

Approved Signatory



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Test Report No. XMNEC1400132001 Date: 23 Jun 2014 Page 2 of 5

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description

SN1 XMN14-001320.001 Transparent glass tube

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)With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric

Method using UV-Vis.

(5) With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	106
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND
Sum of PBBs	1,000	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
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	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND



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Test Report	No. XMNEC1400132001		Date: 23 Jun 2014		Page 3 of 5
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>	
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 the directive 2011/65/EU, Annex II



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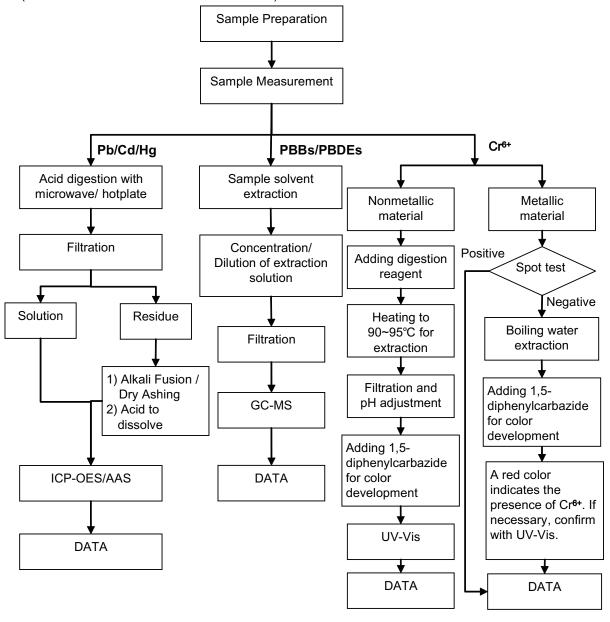
No. XMNEC1400132001

Date: 23 Jun 2014 Page 4 of 5

ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Sunny Lu / Holly Chen
- 2) Name of the person in charge of testing: Michael Tso
- 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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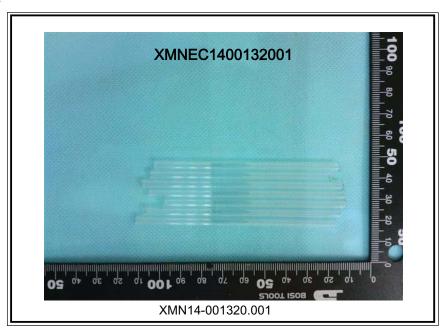


No. XMNEC1400132001

Date: 23 Jun 2014

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Sample photo:



SGS authenticate the photo on original report only

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: TWNC00389211 Number

Date : Aug 28, 2014

Littelfuse Philippines Inc. Applicant:

LIMA Technology Center, Lipa City,

Malvar, Batangas

Sample Description:

One (1) group of submitted samples said to be:

Part Description Cu CDA 102 Sn Plated

Part Number 082418-001 Date Sample Received Aug 21, 2014 **Date Test Started** Aug 22, 2014

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



Number: TWNC00389211

Test Conducted

Test Result Summary:

rest Result Summary.				
<u>Test Item</u>	<u>Unit</u>	<u>Test Method</u>	Result Silvery metal wire	<u>RL</u>
Heavy Metal	•			
Cadmium (Cd) content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Lead (Pb) content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	12	2
Mercury (Hg) content	ppm	With reference to IEC 62321-4: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Chromium VI (Cr ⁶⁺) content	mg/kg with 50 cm ²	With reference to IEC 62321: 2008, by boiling water extraction and determined by UV-Vis Spectrophotometer.	Negative(#)	0.02

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg

ND = Not detected

= Reporting limit, quantitation limit of analyte in sample

mg/kg with 50cm² = Milligram per kilogram with 50 square centimeter

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 cm² was used and the dilution factor was adjusted accordingly.

Responsibility of Chemist: Ryan Lin/ Pelny Hsiao

Date Sample Received : Aug 21, 2014

Test Period : Aug 22, 2014 to Aug 28, 2014

RoHS Limit:

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)

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.

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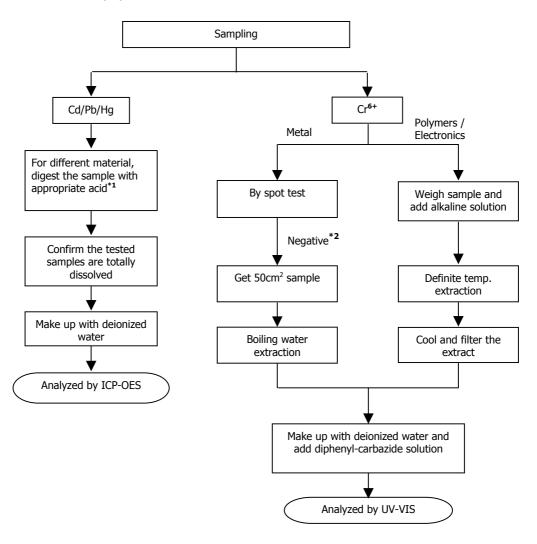
Number: TWNC00389211

Test Conducted Measurement Flowchart:

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

Reference Standard : Cd/Pb: IEC 62321-5:2013; Hg: IEC 62321-4:2013;

Chromium (VI): IEC 62321:2008



Remarks:

*1: List of Appropriate Acid :

Material	Acid Added for Digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals	HNO ₃ ,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.

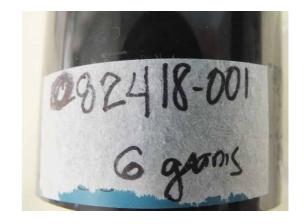


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TWNC00389211 Number:







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TWNC00389211 Number:

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- The Company acts for the person or body from whom the request to provide its services has originated (hereinafter "the Principal"). No other party is entitled to give instructions to the Company unless agreed by the Company.

 All rights (including but not limited to copyright) in any test reports, surveys, certificates of inspection or other material produced by the Company in the course of providing its services shall remain vested in the Company. The Principal shall not reproduce or make copies, publish or disclose the contents of any such material or extracts thereof to any third party without the Company's prior written consent, which may be refused at its discretion. The Principal further undertakes that its servants and agents shall keep confidential and shall not publish or otherwise use any information that may be acquired relating to the Company's activities.

 4.1 The Company undertakes to exercise due care and skill in the performance of its services and accepts responsibility only where such skill and care is not
- - The liability of the Company in respect of any claims for loss, damage or expense of whatsoever nature and howsoever arising in respect of any breach of contract and/or any failure to exercise due skill and care by the Company shall in no circumstances exceed a total aggregate sum equal to ten (10) times the amount of the fee or commission payable in respect of the specific service required under the particular contract with the Company which gives rise to such 4.2 claims provided however that the Company shall have no liability in respect of any claims for indirect or consequential loss including loss of profit and/or loss of future business and/or loss of production and/or cancellation of contracts entered into by the Principal.
 - 4.3 The Company shall not in any event be liable for any loss or damage caused by delay in performance or non-performance of any of its services where the same is occasioned by any cause whatsoever that is beyond the Company's control including but not limited to war, civil disturbance, requisitioning, governmental or parliamentary restriction, prohibitions or enactment of any kind, import or export regulations, strike or trade dispute (whether involving its own employees or those of any other person), difficulties in obtaining workmen or materials, breakdown of machinery, fire or accident. Should any such event occur the Company may cancel or suspend any contract for the provision of services without incurring any liability whatsoever.
 - The Company will not be liable to the Principal for any loss or damage whatsoever sustained by the Principal as a result of any failure by the Company to comply with any time estimate given by the Company relating to the provision of its services. [See clause 9.1] [See clause 9.2] 44
 - 4.5 The Principal acknowledges that samples may be damaged or destroyed in the course of testing carried out by the Company or any of the Company's agent or subcontractor as part of the necessary testing process and the Company shall not in any event be liable for any loss or damage arising from the damage or
 - destruction of the samples subject to testing.

 In the event that the Principal requests for the return of the samples, the Company shall not be responsible for any re-packaging of the samples prior to such 4 6 return and the Company shall in no circumstances be liable for any loss or damage caused to any of the samples during or as a result of their shipment to the Principal for the purpose of this Clause 4.6.
- 5 5.1 Subject to the Principal's instructions as accepted by the Company, the test reports, surveys, certificates of inspection or other material produced by the Company shall contain statements of opinion made with due care within the limitation of the instructions received by the Company. The Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received.

 For pre-shipment inspection or survey of goods, the Company's inspector shall perform the inspection or survey when goods are 100% completed, packed
 - 5.2 and marked (unless otherwise agreed between the Company and the Principal). Goods for inspection or survey shall be unpacked in the presence of the Company's inspector and inspection or survey shall, subject to Condition 5.3, take place at the place specified by the Principal.
 - If the Company's inspector finds that the location is not suitable for carrying out a proper inspection or survey of goods or where necessary equipment for inspection or survey is not available the inspector may, if practical in the circumstances, draw samples of goods from the location and carry out the inspection or survey at the premises of the Company. The Principal shall be responsible for all costs and expenses incurred in relation thereto. 5.3
 - Reports, surveys or certificates issued following testing or analysis of samples contain the Company's specific opinion on those samples only but do not express any opinion upon the bulk from which the samples were drawn. If an opinion on the bulk is requested special arrangements in writing must be made in advance with the Company's responsibility extend beyond inspection, 5.4 testing and reporting upon the samples actually drawn from the bulk and inspected, tested and surveyed by the Company and any inference to be drawn from the results of such inspection or survey or testing shall be entirely in the discretion and at the sole and exclusive responsibility of the Principal
- 6 The Company shall be entitled at its discretion to delegate the performance of the whole or any part of the services contracted for with the Principal to any agent or subcontractor
- Every officer, employee, agent or subcontractor of the Company shall have the benefit of the limitations of liability and the indemnities contained in the General Conditions. So far as relates to such limitations and indemnities, any contract entered into by the Company is entered into not only on its own behalf but also as
- agent and trustee for every such person as aforesaid.

 If the requirements of the Principal necessitate the analysis of samples by the Principal or by any third party the Company will pass on the results of the analysis but without responsibility for its accuracy. Where the Company is only able to witness an analysis by the Principal or by any third party the Company will provide confirmation, if such be the case, that a correct sample has been analysed but will not otherwise be responsible for the accuracy of such analysis.
- The Principal will:
 - 9.1 ensure that instructions to the Company are given in due time and are accompanied by sufficient information to enable the required services to be performed effectively:
 - 9.2 accept that documents reflecting arrangements or agreements made between the Principal and any third party, or third party documents such as copies of contracts of sale, letters of credit, bills of lading, etc. are -if received by the Company considered to be for information only, without extending or restricting the services to be provided or obligations accepted by the Company.
 - 9.3 procure all necessary access for the Company's representatives to enable the required services to be performed effectively.
 - 94
 - supply, if required, any special equipment and personnel necessary for the performance of the required services.
 ensure that all necessary measures are taken for safety and security of working conditions, sites and installations during the performance of the required





TWNC00389211 Number:

- take all necessary steps to eliminate or remedy any obstruction to or interruptions in the performance of the required services and repack all inspected goods immediately after any inspection or survey of them;
- inform the Company in advance of any known hazards or dangers, actual or potential, associated with any request for the provision of services by the Company including but not limited to the presence or risk of radiation, toxic or noxious or explosive elements or materials, environmental pollution or poisons;

10. The Principal shall guarantee, hold harmless and indemnify the Company and its officers, employees, agents or subcontractors against

- 10.1 all claims made by any third party for any loss, damage or expense of whatsoever nature and howsoever arising relating to the performance, purported performance or non-performance of any of services to the extent that the aggregate of any such claims relating to any one service exceeds the limit mentioned in Condition 4.2.
- 10.2 any loss or damage suffered by the Company as a result of the provision of services by the Company to the Principal otherwise than resulting from the Company's own error, negligence or wilful default.
- 11. 11.1 The Principal will punctually pay the Company immediately upon presentation of the relevant invoice or within such other period as may have been agreed in writing by the Company all charges rendered by the Company failing which interest will become due at the rate of 1.5 per cent per month from the date of invoice until payment. The Principal further agrees and undertakes to reimburse the Company all disbursements reasonably incurred in connection with the provision of its services.
 - 11.2 The Principal shall not be entitled to retain or defer payment of any sums due to the Company on account of any dispute, cross claim or set off which it may allege against the Company.
 - 11.3 In the event of any suspension of payment arrangement with creditors, bankruptcy, insolvency, receivership or cessation of business or failure of the Principal to pay part or all of any sums owing to the Company, the Company shall be entitled to suspend all further performance of its services and withhold the issue of any test report, survey, certificate of inspection or other material requested forthwith and without liability until payment of all sums owing to the Company together with interest thereon is made
- 12. Without prejudice to any rights the Company may have at law or under the Conditions, the Company has the following rights in the event of non-payment of sums owing to the Company as set out below.
 - The Company has a general and particular lien over all samples delivered to be tested for all claims and sums owing by the Principal to the Company under any contract whatsoever and in any other way whatsoever.
 - During the currency of any such lien the Company is entitled to be paid reasonable storage charges for samples retained in the Company's custody. 12.2
 - 12.3 Without prejudice to the Company's lien and other rights under Conditions 12.1 to 12.2 above, if test, inspection or survey of the goods takes place on the premises of the Company, the Company may give notice to the Principal that the goods (or any part thereof) are ready for collection and the Principal shall collect the same within three (3) calendar days (Saturdays, Sundays and Public Holidays excepted). Upon the expiry of this period, if the goods are not collected by the Principal, at the sole discretion of the Company the goods may be deemed abandoned and/or destroyed.
 - 12.4 Without prejudice to Conditions 12.3 above, the Company shall have the discretion to store the goods (or any of them) at their own premises or elsewhere at the Principal's expense if the Principal has deposited the goods at the Company's premises for the performance of these services and has subsequently failed to collect the said goods.
 - 12.5 The expenses by way of disbursements that the Company may reclaim from the Principal include all reasonable costs incurred by the Company (whether by way of storage, insurance or otherwise) in respect of the goods and it is expressly declared that it shall be reasonable but not mandatory for the Company to effect comprehensive insurance in respect of the goods
 - 12.6 Without prejudice to the Company's lien and other rights under Conditions 12.1 to 12.5 above, the risk and property in the goods shall remain at all times in the Principal
- 13. In the event of the Company being prevented by reason of any cause whatsoever outside the Company's control from performing or completing any service for which an order has been given or an agreement made, the Principal will pay to the Company:
 - 13.1 the amount of all abortive expenditure actually made or incurred; and
 - 13.2 a proportion of the agreed fee or commission equal to the proportion (if any) of the service actually carried out; and the Company shall be relieved of all responsibility whatsoever for the partial or total non-performance of the required service.
- 14. The Company shall be discharged from all liability to the Principal for all claims for loss, damage or expense unless suit is brought within twelve (12) months after the date of the performance by the Company of the service which gives rise to the claim or in the event of any alleged non-performance within twelve (12) months of the date when such service should have been completed.
- 15. In the event that any unforeseen additional time or costs are incurred in the course of carrying out any of its services the Company shall be entitled to render additional charges as shall reasonably reflect such additional time and costs incurred.
- 18. All contracts for provision of services by the Company and the Conditions shall be construed in accordance with and governed by the laws of the ROC and for the purpose of any arbitral or litigation proceedings such contracts shall be deemed to have been made and performed in Taiwan. If any provision contained in the Conditions is and/or becomes invalid, illegal or unenforceable in any respect under the laws of the ROC, the validity, legality and enforceability of the remaining provisions hereof shall not in any way be affected or impaired thereby.

 17. Any dispute or claim arising out of or relating to the provision of, or any agreement to provide, services by the Company shall be referred to and determined by
- arbitration subject to the Company's sole and overriding discretion to commence litigation proceedings in the courts of Taiwan or the courts of any other country as the Company may choose. The parties may agree to the appointment of an arbitrator failing which either party may, after having made a written request to concur in the appointment of an arbitrator, request the ROC Arbitration Association to appoint an arbitrator. The place of arbitration shall be in Taiwan. There shall only be





测试报告 No. SHAEC1325106301 日期: 2013年12月27日 第1页,共4页

LITTELFUSE 菲律宾 INC LITTELFUSE PHILIPPINES INC. LIMA 技术中心 利帕市 马尔瓦,八打雁 LIMA TECHNOLOGY CENTER, LIPA CITY, MALVAR BATANGAS

以下测试之样品是由申请者所提供及确认:910-537-3铜帽

SGS工作编号: SP13-037154 - SUZ

型号: 910-537-3 料号: 910-537-3

样品接收日期: 2013年12月24日

测试周期: 2013年12月24日 - 2013年12月27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,镉、铅、汞、六价铬的测试结果符合欧盟RoHS指

令2002/95/EC的重订指令2011/65/EU附录II的限值要求.

通标标准技术服务有限公司 授权签名

JJ Fan 范晶捷 批准签署人

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测试报告 No. SHAEC1325106301 日期: 2013年12月27日 第2页,共4页

测试结果:

测试样品描述:

样品编号SGS样品ID描述SN1SHA13-251063.001银色金属

备注:

(1) 1 mg/kg = 0.0001%

(2) MDL = 方法检测限

(3) ND = 未检出 (< MDL)

(4) "-" = 未规定

RoHS指令2011/65/EU

测试方法: (1) 参考IEC 62321-5:2013, 用ICP-OES测定镉的含量

(2) 参考IEC 62321-5:2013, 用ICP-OES测定铅的含量 (3) 参考IEC 62321-4:2013, 用ICP-OES测定汞的含量

(4) 参考IEC 62321:2008, 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	<u>限值</u>	<u>单位</u>	<u>MDL</u>	<u>001</u>
镉 (Cd)	100	mg/kg	2	ND
铅(Pb)	1000	mg/kg	2	7
汞 (Hg)	1000	mg/kg	2	ND
六价铬(CrVI)	-	-	\Diamond	阴性

备注:

- (1) 最大允许极限值引用自指令2011/65/EU 附录II.
- (2) ◊点测试法:

阴性= 未检测到六价铬.阳性 = 检测到六价铬:

(当点测试结果为阴性或无法确定时,将采用沸水萃取法作进一步的结果验证.)

◇沸水萃取法:

阴性= 未检测到六价铬

阳性= 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 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能代表测试时样品含六价铬的状态.

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测试报告

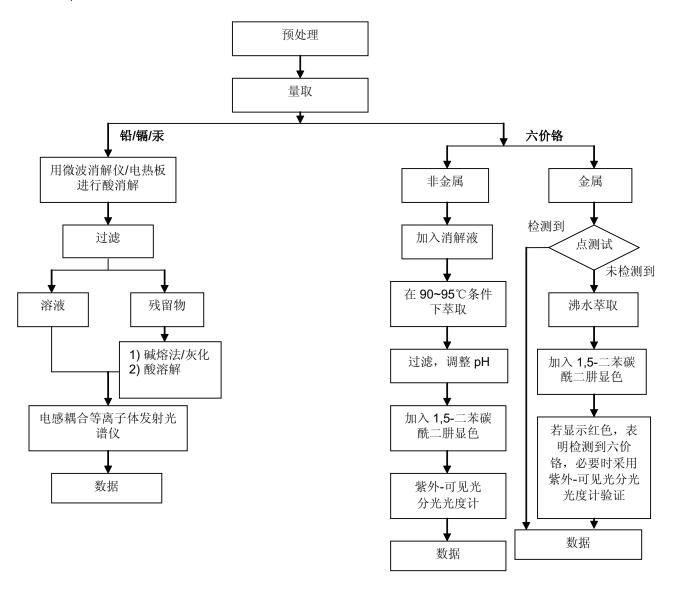
No. SHAEC1325106301

日期: 2013年12月27日 第3页,共4页

附件

RoHS 测试流程图

- 1) 分析人员: 施青/汪红新/王晓艳
- 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)



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测试报告

No. SHAEC1325106301

日期: 2013年12月27日 第4页,共4页

样品照片:



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*** 报告完 ***

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Test Report No. CANML1405719601 Date: 25 Apr 2014 Page 1 of 5

LITTELFUSE PHILIPPINES INC. LIMA TECHNOLOGY CENTER, LIPA CITY, MALVAR, BATANGAS

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

SGS Job No. : SZML140451500 - SZ

Client Ref. Info.: Brass

Date of Sample Received: 22 Apr 2014

Testing Period: 22 Apr 2014 - 25 Apr 2014

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 selected part of submitted sample(s), the

results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits

in RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of SGS-CSTC Ltd.

Merry Lv

Approved Signatory



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Test Report No. CANML1405719601 Date: 25 Apr 2014 Page 2 of 5

Test Results:

Test Part Description:

Specimen No.	SGS Sample ID	Description
SN1	CAN14-057196.001	Copper-colored metal (base of silvery plated metal cap)

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: (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) With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test /

Colorimetric Method using UV-Vis.

(5) With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	10
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	\Diamond	Negative
Sum of PBBs	1,000	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
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	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND



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Test Report	No. CANML1405719601		Date: 25 Apr 2014		Page 3 of 5
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>	
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 the 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.



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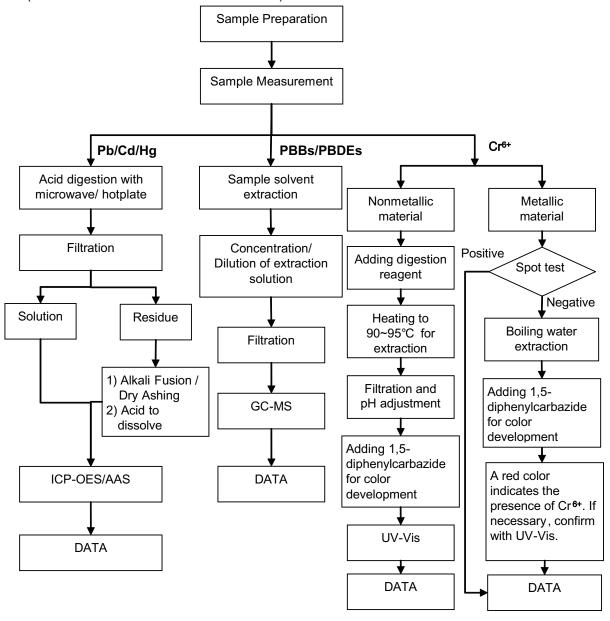
Date: 25 Apr 2014

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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Michael Tso / Cutey Yu
- 2) Name of the person in charge of testing: Adams Yu / Yolanda Wei
- 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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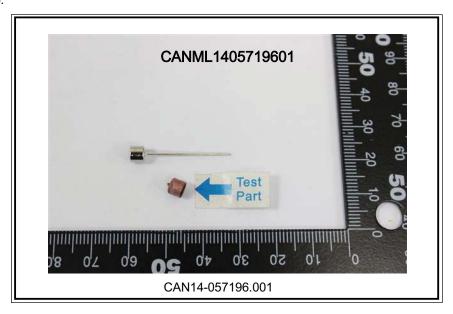


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Sample photo:



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