

# **ICP Test Report Certification Packet**

Company name:	Littelfuse, Inc.			
Product Series:	LFCC-CD - LFCC/CD Series – Class CC/CD Indicating Fuse Block			
Product #:	LFC60060xxxxxxxxx			
Issue Date:	December 17, 2013			
It is hereby certified by Littelfuse, Inc. that there is neither RoHS (EU Directive 2002/95/EC 2011/65/EU)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes. In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.				
	Issued by:  JENNY DINGLASAN <global ehs="" specialist=""></global>			
(1) Parts, sub-materials a This document cov manufactured by Li  < Raw Materials U Please see Tab	vers the L60060 Fuse Block Series RoHS-Compliant series product ttelfuse, Inc.			
(2) The ICP data on all r				
Remarks :				



Table 1: List of Raw Materials covered by this report

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	N/A	Fuse Block (PBT Valox)	3-12
2	N/A	Indicator (PC 2407)	13-18
3	N/A	Stop (POM DELRIN 500P)	19-28
4	N/A	Clip – T3 Copper Alloy	29-32
5	N/A	Spring – 65 Mn	33-36
6	N/A	Terminal Block – Aluminum Material	37-39
7	N/A	Slotted Screw – Aluminum Material	37-39
8	N/A	Tapping Screw - Steel	40-43
9	N/A	Neon Components - Lamp	44-48
10	N/A	Neon Components - Resistor	49-53
11	N/A	Neon Components – Coated Wire	54-67
12	N/A	Tin Plating	68-71
13	N/A	Zinc Plating	72-75



Number: 131200757SHA-001 **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: Black plastic

Part Description Fuse Block (PBT Valox)

Part Number NA

Tests conducted:

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

Conclusion:

Tested sample Result

With reference to test method of IEC 62321 Edition 1.0: 2008 Submitted sample Pass

and maximum concentration limits quoted from RoHS Directive

2011/65/EU

To be continued

Date: Dec. 17, 2013

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

Joy Zhou

Authorized by: For Intertek testing services Ltd., Shanghai

Jonny Jing Manager



**Tests Conducted** 

#### 1. RoHS testing and Halogen content

(I) Test Result Summary:

<u>Testing Item</u>	Result (ppm)
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr <sup>6+</sup> ) 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)	750
Chlorine (CI)	100
Bromine (Br)	43750
lodine (I)	ND

Remarks: ppm = parts per million = mg/kg

ND = not detected

Responsibility of Chemist: Dent Fang / Leaf Liu



#### **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 <sup>6+</sup> ) 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 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 <sup>6+</sup> ) 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

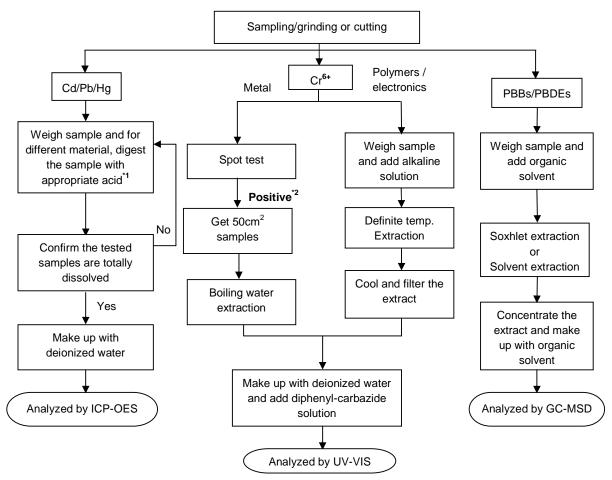
Remark: Reporting limit = Quantitation Limit of Analyze in Sample



**Tests Conducted** 

#### (IV) Measurement Flowchart:

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



#### Remarks:

\*1: List of appropriate acid:

MATERIAL	ACID ADDED FOR DIGESTION	
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>	
Metals	HNO <sub>3</sub> ,HCL,HF	
Electronics	HNO <sub>3</sub> ,HCL,H <sub>2</sub> O <sub>2</sub> ,HBF <sub>4</sub>	

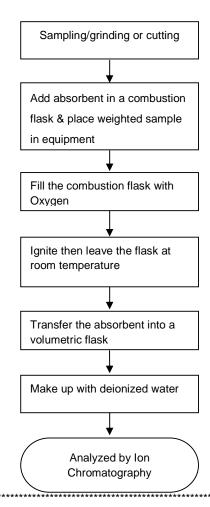
\*2: If the result of spot test is positive, Chromium (VI) would be determined as detected.



**Tests Conducted** 

(V) Measurement flowchart:

Test or Halogen content Reference standard: EN 14582





**Tests Conducted** 

#### 2. Phthalate content test

With reference to EN 14372 by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Tested Compound	Result (%,w/w)	Client' requirement (%, w/w)
Di-butyl phthalate (DBP)	ND	-
Di(2-ethyl hexyl) phthalate(DEHP)	ND	-
Benzyl butyl phthalate (BBP)	ND	-
Sum of three phthalates	ND	0.1
Di-iso-butyl phthalate (DIBP)	ND	0.1

Remark : Detection Limit = 0.01%(w/w)

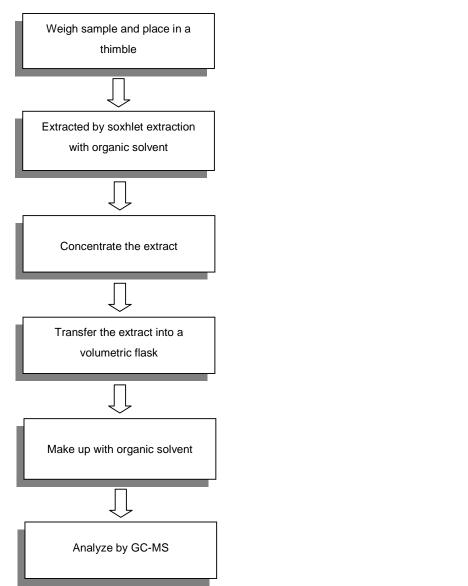
ND = Not Detected



**Tests Conducted** 

Measurement flowchart:

Test for **phthalate** content





**Tests Conducted** 

#### 3. HBCDD content

### ( I )Test result summary:

<u>Testing item</u>	Result (ppm)
HBCDD (hexabromocyclododecane)	ND

Remarks: ppm = parts per million = mg/kg

ND = Not detected

#### (II) Test method:

Testing item	Testing method	Reporting limit
IHBCDD (hexabromocyclododecane)	With reference to US EPA 3540C, by solvent extraction and determined by GC-MS	10 ppm

Date sample received: Dec. 13, 2013

Testing period: Dec. 13, 2013 To Dec. 17, 2013

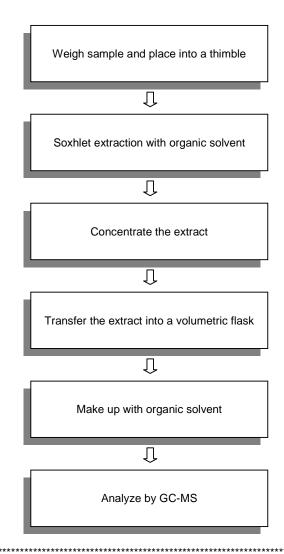
resting period. Dec. 13, 2013 10 Dec. 17, 2013



**Tests Conducted** 

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content





**Tests Conducted** 



End of report

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No. SHAEC1302100308

日期: 2013年02月06日

第1页,共6页

上海锦磁贸易有限公司

上海市宝山城市工业园区园光路228号

以下测试之样品是由申请者所提供及确认: MAKROLON 2407

SGS工作编号: SP13-002730 - SH

成分:聚碳酸酯型号:550115供应商:拜耳

样品接收日期: 2013年02月04日

测试周期: 2013年02月04日 - 2013年02月06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、多溴联苯(PBB)、多溴二苯

醚(PBDE)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

Hele Lin

授权签名

Helen Liu 刘海鹏

批准签署人

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Disposate the content of the content of the sample(s) tested.

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**测试报告** No. SHAEC1302100308 日期: 2013年02月06日 第2页,共6页

测试结果:

#### 测试样品描述:

样品编号SGS样品ID描述1SHA13-021003.004透明颗粒

备注:

(1) 1 mg/kg = 1 ppm = 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: 参考IEC 62321:2008:

(1) 用ICP-OES测定镉的含量.

(2) 用ICP-OES测定铅的含量.

(3) 用ICP-OES测定汞的含量.

(4) 用紫外-可见分光光度计比色法测定六价铬的含量.

(5) 用GC-MS测定PBBs(多溴联苯)和PBDEs(多溴二苯醚)的含量.

测试项目	<u>限值</u>	<u>单位</u>	MDL	<u>004</u>
镉(Cd)	100	mg/kg	2	ND
铅(Pb)	1000	mg/kg	2	ND
汞(Hg)	1000	mg/kg	2	ND
六价铬(CrVI)	1000	mg/kg	2	ND
多溴联苯之和(PBBs)	1000	mg/kg	-	ND
一溴联苯	-	mg/kg	5	ND
二溴联苯	-	mg/kg	5	ND
三溴联苯	-	mg/kg	5	ND
四溴联苯	-	mg/kg	5	ND
五溴联苯	-	mg/kg	5	ND
六溴联苯	-	mg/kg	5	ND
七溴联苯	-	mg/kg	5	ND
八溴联苯	-	mg/kg	5	ND
九溴联苯	-	mg/kg	5	ND
十溴联苯	-	mg/kg	5	ND
多溴二苯醚之和(PBDEs)	1000	mg/kg	-	ND
一溴二苯醚	-	mg/kg	5	ND

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测试报告 No. SHAEC1302100308 日期: 2013年02月06日 第3页,共6页

<u>测试项目</u>	限值	<u>单位</u>	<u>MDL</u>	<u>004</u>
二溴二苯醚	-	mg/kg	5	ND
三溴二苯醚	-	mg/kg	5	ND
四溴二苯醚	-	mg/kg	5	ND
五溴二苯醚	-	mg/kg	5	ND
六溴二苯醚	-	mg/kg	5	ND
七溴二苯醚	-	mg/kg	5	ND
八溴二苯醚	-	mg/kg	5	ND
九溴二苯醚	-	mg/kg	5	ND
十溴二苯醚	-	mg/kg	5	ND

#### 备注:

(1) 最大允许极限值引用自指令2011/65/EU附录II.

### 卤素

测试方法: 参照EN 14582:2007方法测定, 采用IC进行分析.

测试项目	<u>单位</u>	<u>MDL</u>	<u>004</u>
氟 <b>(F)</b>	mg/kg	50	ND
氯(CI)	mg/kg	50	ND
溴(Br)	mg/kg	50	ND
碘(I)	mg/kg	50	ND

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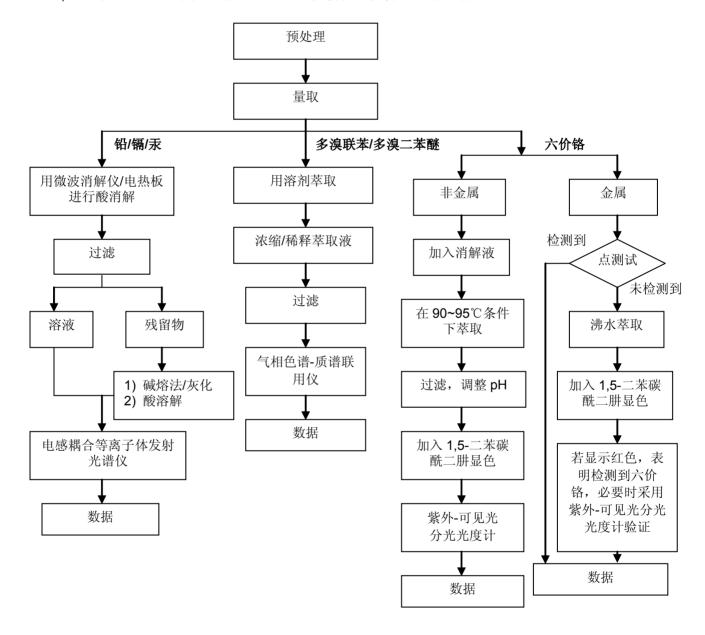
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附件

# RoHS 测试流程图

- 1) 分析人员: 施青/王彦青/肖飞/徐刚
- 2) 项目负责人: 张春华/徐亮/李丹
- 3) 样品按照下述流程被完全消解(六价铬和多溴联苯/多溴二苯醚测试除外)。



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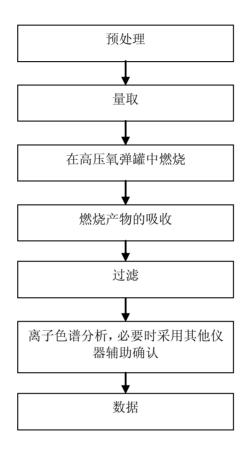
No. SHAEC1302100308

日期: 2013年02月06日

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# Halogen 测试流程图

分析人员: 印字
 项目负责人: 李丹



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\*\*\* 报告完 \*\*\*

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Number: 131200757SHA-002 **Test Report** 

Applicant: LITTELFUSE, INC. Date: Dec. 17, 2013

800 E. NORTHWEST HWY DES PLAINES, IL 60016

ATTN: J. CABILAN / A. CESISTA JR

Sample Description:

One (1) submitted sample said to be: Red plastic

Stop (POM DELRIN 500P) Part Description

Part Number NA

Tests conducted:

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

Conclusion:

Tested sample Result Submitted sample

With reference to test method of IEC 62321 Edition 1.0: 2008 Pass

and maximum concentration limits quoted from RoHS Directive

2011/65/EU

To be continued

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

Joy Zhou

Authorized by: For Intertek testing services Ltd., Shanghai

Jonny Jing Manager





**Tests Conducted** 

#### 1. RoHS testing and Halogen content

(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 <sup>6+</sup> ) 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)	200
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = parts per million = mg/kg

ND = not detected

Responsibility of Chemist: Dent Fang / Leaf Liu



#### **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 <sup>6+</sup> ) 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:

<u>Testing Item</u>	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 <sup>6+</sup> ) 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

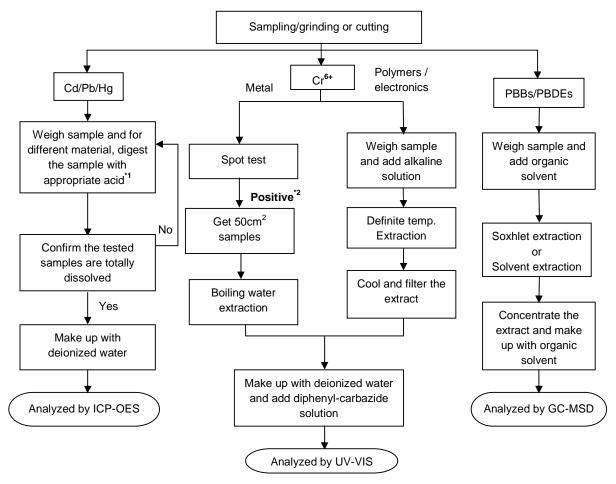
Remark: Reporting limit = Quantitation Limit of Analyze in Sample



**Tests Conducted** 

#### (IV) Measurement Flowchart:

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



#### Remarks:

\*1: List of appropriate acid:

'''		
MATERIAL	ACID ADDED FOR DIGESTION	
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>	
Metals	HNO <sub>3</sub> ,HCL,HF	
Electronics	HNO <sub>3</sub> ,HCL,H <sub>2</sub> O <sub>2</sub> ,HBF <sub>4</sub>	

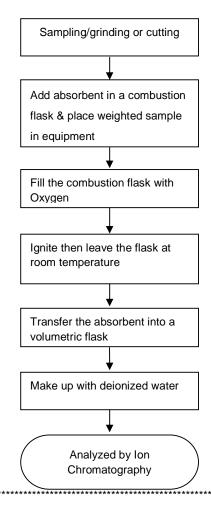
\*2: If the result of spot test is positive, Chromium (VI) would be determined as detected.



**Tests Conducted** 

(V) Measurement flowchart:

Test or Halogen content Reference standard: EN 14582





**Tests Conducted** 

#### 2. Phthalate content test

With reference to EN 14372 by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Tested Compound	Result (%,w/w)	Client' requirement (%, w/w)
Di-butyl phthalate (DBP)	ND	-
Di(2-ethyl hexyl) phthalate(DEHP)	ND	-
Benzyl butyl phthalate (BBP)	ND	-
Sum of three phthalates	ND	0.1
Di-iso-butyl phthalate (DIBP)	ND	0.1

Remark : Detection Limit = 0.01%(w/w)

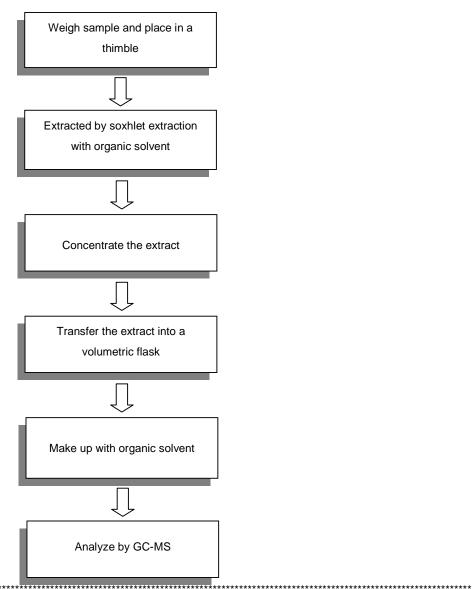
ND = Not Detected



**Tests Conducted** 

Measurement flowchart:

Test for **phthalate** content





**Tests Conducted** 

#### 3. HBCDD content

### ( I )Test result summary:

<u>Testing item</u>	Result (ppm)
HBCDD (hexabromocyclododecane)	ND

Remarks: ppm = parts per million = mg/kg

ND = Not detected

#### (II) Test method:

Testing item	Testing method	Reporting limit
IHBCDD (hexabromocyclododecane)	With reference to US EPA 3540C, by solvent extraction and determined by GC-MS	10 ppm

Date sample received: Dec. 13, 2013

Testing period: Dec. 13, 2013 To Dec. 17, 2013

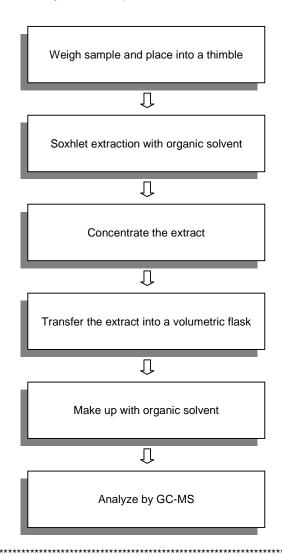
165tilly period. Dec. 13, 2013 10 Dec. 17, 2013



**Tests Conducted** 

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content





**Tests Conducted** 



End of report

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**测试报告** No. SHAMLP1305938402 日期: 2013年04月17日 第1页,共4页

苏州鼎博金属材料科技有限公司 苏州市312国道上高路桥东堍振兴化工厂内31号厂房

以下测试之样品是由申请者所提供及确认: C1100(T2)

SGS工作编号: SC130402043(E) SC130402044(C) - SH

材质牌号: 紫铜

客户参考信息: SUZPL130400019 样品接收日期: 2013年04月11日

测试周期: 2013年04月11日 - 2013年04月17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

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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ticity of testing /inspection report & certificate, please contact us at telephone: (86-755)83071443, or email: CN.Doccheck@sgs.com

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**测试报告** No. SHAMLP1305938402 日期: 2013年04月17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

1 SHA13-059384.001 紫铜色金属板

备注:

(1) 1 mg/kg = 1 ppm = 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: 参考IEC 62321:2008:

(1) 用ICP-OES测定镉的含量.(2) 用ICP-OES测定铅的含量.(3) 用ICP-OES测定汞的含量.

(4) 用点测试法/紫外-可见分光光度计比色法测定六价铬的含量.

<u>测试项目</u>	限值	<u>单位</u>	<u>MDL</u>	<u>001</u>
镉 (Cd)	100	mg/kg	2	ND
铅(Pb)	1000	mg/kg	2	ND
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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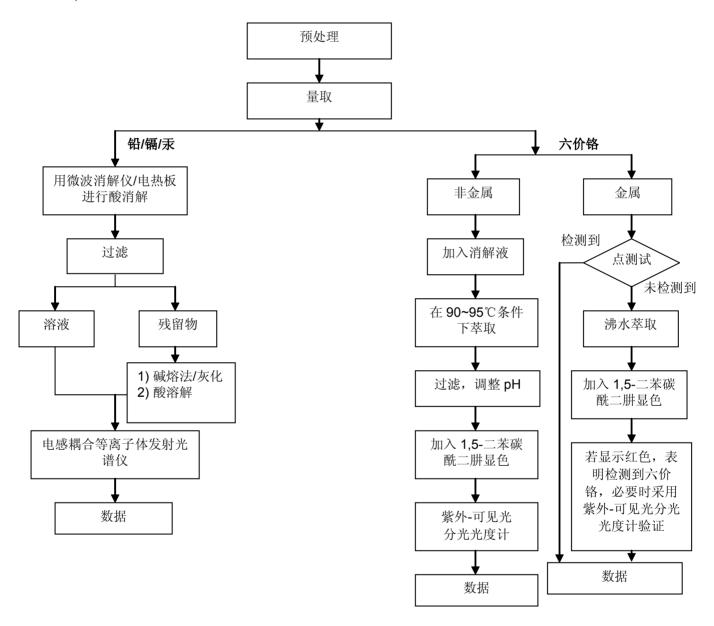
No. SHAMLP1305938402

日期: 2013年04月17日 第3页,共4页

附件

# RoHS 测试流程图

- 1) 分析人员: 施青/王彦青/肖飞
- 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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日期: 2013年04月17日 第4页,共4页

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**测试报告** No. CANML1303384004 日期: 2013年03月21日 第1页,共4页

贝卡尔特(新余)金属制品有限公司 中国江西省新余市高新技术产业园区渝东大道3089号

以下测试之样品是由申请者所提供及确认:钢丝

SGS工作编号: GC130301298 - GZ

内部编号: 18.4

客户参考信息: 钢号:65Mn

样品接收日期: 2013年03月18日

测试周期: 2013年03月18日 - 2013年03月21日

测试要求: 根据客户要求测试

测试方法: 请参见下一页 演参见下一页 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

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**测试报告** No. CANML1303384004 日期: 2013年03月21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1CAN13-033840.002银灰色金属

备注:

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

(2) MDL = 检测极限值

(3) ND = 未检出 ( < MDL )

(4) "-" = 未规定

# RoHS指令2011/65/EU

测试方法: 参考IEC 62321:2008:

(1) 用ICP-OES测定镉的含量 (2) 用ICP-OES测定铅的含量 (3) 用ICP-OES测定汞的含量

(4) 用点测试法/紫外-可见分光光度计比色法测定六价铬的含量

测试项目	<u>限值</u>	<u>单位</u>	<u>MDL</u>	<u>002</u>
镉(Cd)	100	mg/kg	2	ND
铅(Pb)	1,000	mg/kg	2	ND
汞(Hg)	1,000	mg/kg	2	ND
六价铬(Cr(VI))	-	-	$\Diamond$	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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No. CANML1303384004

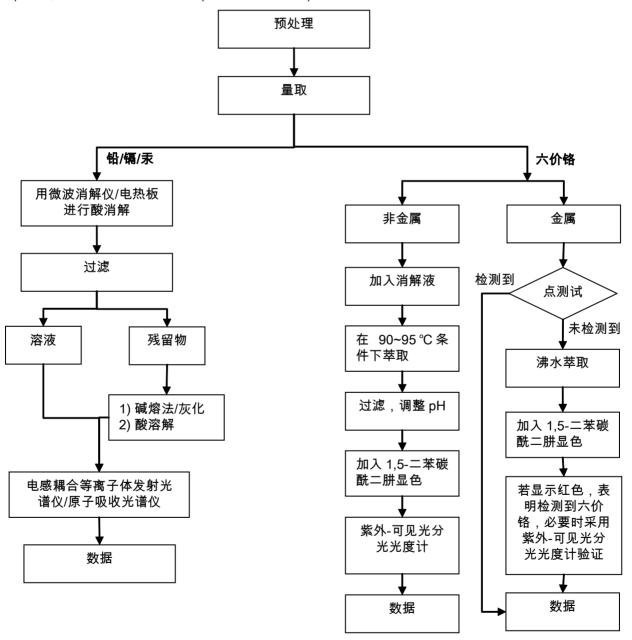
日期: 2013年03月21日 第3页,共4页

### 附件

# RoHS 测试流程图

1) 分析人员:曹阳 2) 项目负责人:余奕东

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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No. CANML1303384004

日期: 2013年03月21日

第4页,共4页

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The company is a stated the results shown in this test report refer only to the sample(s) tested.

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No. NGBHG1300842901

日期: 2013年05月28日 第1页,共3页

宁波德精铝业科技有限公司 宁海县桥头胡街道九都路58,60号

以下测试之样品是由申请者所提供及确认: 铝管

SGS工作编号:

NBHG201302339 - NB

制造商;

宁波德精铝业科技有限公司

款号:

6061 Ф32.6хФ22.5

样品接收日期:

2013年05月21日

测试周期:

2013年05月21日 - 2013年05月28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

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Iris Xiao消玲艳 批准签署人

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No. NGBHG1300842901

日期: 2013年05月28日 第2页, 共3页

测试结果:

测试样品描述;

样品编号

SGS样品ID

描述

1

NGB13-008429.001

银色金属管

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:

参考IEC 62321:2008:

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

测试项目	<u>限值</u>	<u>单位</u>	MDL	<u>001</u>
ິິສ (Cd)	100	mg/kg	2	ND
铅(Pb)	1000	mg/kg	2	14
栽 (Hg)	1000	mg/kg	2	ND
六价铬(CrVI)	<del></del>	-	<b>\langle</b>	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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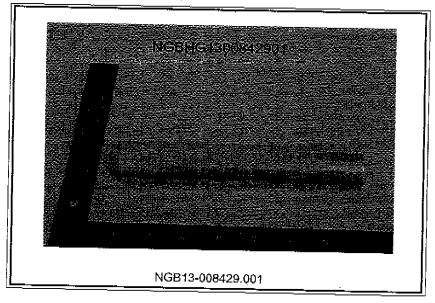
#Co.lif. | 18年前89年 | 1885年 |



No. NGBHG1300842901

日期: 2013年05月28日 第3页,共3页

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**Report No.** RHS06F001428001

Page 1 of 4

WENZHOU JANDA ELECTRONIC CO.,LTD **Applicant** 

NO2, WANGLIN INDUSTRY ZONE, BEIBAIXIANG TOWN, YUEQING CITY. Address

ZHEJIANG PROVINCE, CHINA. 325603

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

Sample Name

Steel

Sample Received Date

Jul. 30, 2013

**Testing Period** 

Jul. 30, 2013 to Aug. 1, 2013

**Test Requested** 

As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg),

Hexavalent Chromium(Cr(VI)) in the submitted sample(s).

#### **Test Method**

Test Item(s)	Test Method	Measured Equipment(s)		
Lead(Pb)	IEC 62321:2008 Ed.1 Sec.9	ICP-OES		
Cadmium(Cd)	IEC 62321:2008 Ed.1 Sec.9	ICP-OES		
Mercury(Hg)	IEC 62321:2008 Ed.1 Sec.7	ICP-OES		
Hexavalent Chromium(Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis		

Test Result(s)

Please refer to the following page(s).

Aug. 1, 2013 Approved by Wei Miao

Approved Signatory

No. 1382077040

Centre Testing International (Ningbo) Co., ltd. 7-8/F/, Building A, No. 750. Chuangyuan Road, Gaoxin District, Ningbo, Zhejiang, China



**Report No.** RHS06F001428001

Page 2 of 4

### Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Tested Item(s)	Result	MDL
Hexavalent Chromium(Cr(VI))	Negative	/

**Tested Sample/Part Description** Metal base

Note: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL)

-mg/kg = ppm = parts per million

-Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg with  $50 \text{cm}^2$  sample surface area used.





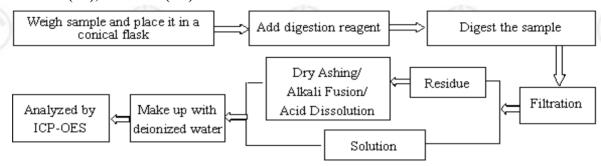


Report No. RHS06F001428001

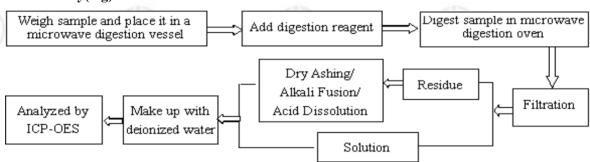
Page 3 of 4

#### **Test Process**

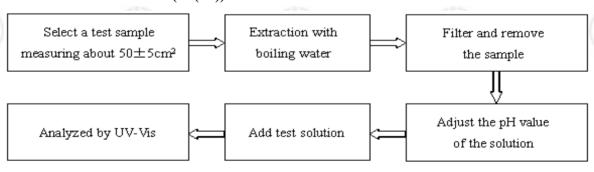
#### 1. Lead(Pb), Cadmium(Cd)



### 2. Mercury(Hg)



#### 3. Hexavalent Chromium(Cr(VI))







**Report No.** RHS06F001428001

Page 4 of 4

Photo(s) of the sample(s)



\*\*\* End of report \*\*\*

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.





No. SHAEC1322894506

日期: 2013年11月29日

第1页,共5页

江苏伯乐达照明电器有限公司(盐城伯乐达新光源有限公司) 江苏盐城亭湖经济开发区华亭路1号

以下测试之样品是由申请者所提供及确认: NE-2染红漆氖灯

SGS工作编号: SP13-033825 - SH

成分: 镀镍铁丝、杜美丝、玻璃管、灯泡漆

样品接收日期: 2013年11月21日

测试周期: 2013年11月21日 - 2013年11月26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

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

本报告是编号为SHAEC1322894505报告的中文版本.

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**测试报告** No. SHAEC1322894506 日期: 2013年11月29日 第2页,共5页

测试结果:

#### 测试样品描述:

样品编号 SGS样品ID 描述

1 SHA13-228945.009 红色本体部分(混合测\*)

备注:

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

(2) MDL = 方法检测限

(3) ND = 未检出 ( < MDL )

(4) "-" = 未规定

### RoHS<u>指令</u>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, 用紫外-可见分光光度计比色法测定六价铬的含量

(5) 参考IEC 62321:2008, 用GC-MS测定PBBs(多溴联苯)和PBDEs(多溴二苯醚) 的含量

测试项目	<u>限值</u>	<u>单位</u>	<u>MDL</u>	<u>009</u>
镉(Cd)	100	mg/kg	2	ND
铅(Pb)	1000	mg/kg	2	16
汞(Hg)	1000	mg/kg	2	ND
六价铬(CrVI)	1000	mg/kg	2	ND
多溴联苯之和(PBBs)	1000	mg/kg	-	ND
一溴联苯	-	mg/kg	5	ND
二溴联苯	-	mg/kg	5	ND
三溴联苯	-	mg/kg	5	ND
四溴联苯	-	mg/kg	5	ND
五溴联苯	-	mg/kg	5	ND
六溴联苯	-	mg/kg	5	ND
七溴联苯	-	mg/kg	5	ND
八溴联苯	-	mg/kg	5	ND
九溴联苯	-	mg/kg	5	ND
十溴联苯	-	mg/kg	5	ND
多溴二苯醚之和(PBDEs)	1000	mg/kg	-	ND
一溴二苯醚	-	mg/kg	5	ND
二溴二苯醚	-	mg/kg	5	ND

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测试报告	No. SHAEC1322894506		日期: 2013年11月29日		第3页,共5页
<u>测试项目</u>	<u>限值</u>	<u>单位</u>	<u>MDL</u>	<u>009</u>	
三溴二苯醚	-	mg/kg	5	ND	
四溴二苯醚	-	mg/kg	5	ND	
五溴二苯醚	-	mg/kg	5	ND	
六溴二苯醚	-	mg/kg	5	ND	
七溴二苯醚	-	mg/kg	5	ND	
八溴二苯醚	-	mg/kg	5	ND	
九溴二苯醚	-	mg/kg	5	ND	
十溴二苯醚	-	mg/kg	5	ND	

#### 备注:

(1) 最大允许极限值引用自指令2011/65/EU附录II.

备注:\*样品基于申请人要求为混合测试。报告中的混合测试结果不代表其中个别单一材质的含量,该测试数据仅供参考

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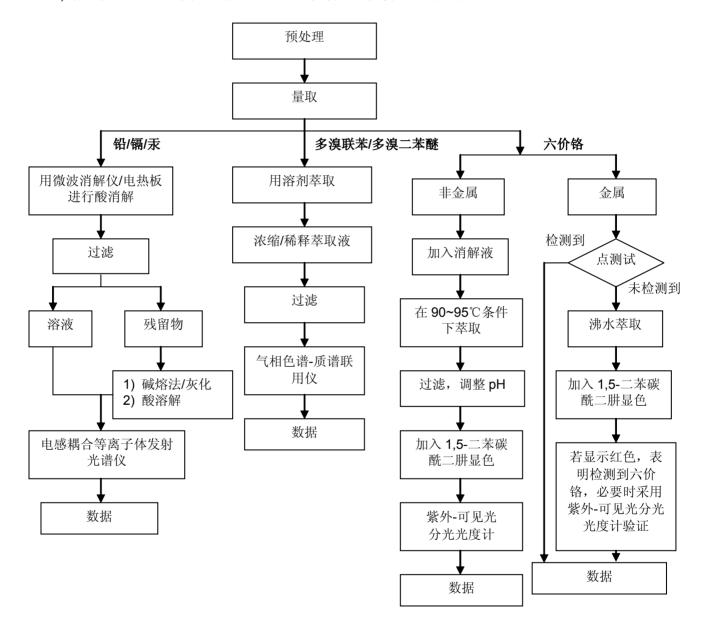
日期: 2013年11月29日

第4页.共5页

附件

### RoHS 测试流程图

- 1) 分析人员: 施青/汪红新/王晓艳/徐刚
- 2) 项目负责人: 张春华/徐亮/黄婷
- 3) 样品按照下述流程被完全消解(六价铬和多溴联苯/多溴二苯醚测试除外)。



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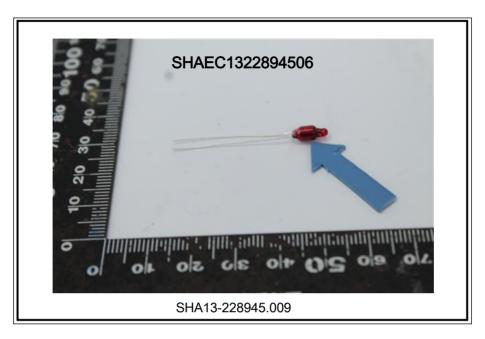


No. SHAEC1322894506

日期: 2013年11月29日

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Test Report No. CANEC1300373503 Date: 11 Jan 2013 Page 1 of 5

CHAOZHOU THREE-CIRCLE (GROUP) CO.,LTD

SAN HUAN INDUSTRIAL DISTRICT, FENGTANG TOWN, CHAOZHOU CITY, GUANGDONG PROVINCE 515646, CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : METAL OXIDE FILM RESISTORS RSFB & RSFS & RY

SGS Job No.: CP13-000815 - GZ

Date of Sample Received: 08 Jan 2013

Testing Period : 08 Jan 2013 - 11 Jan 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.

Almay Gao

Approved Signatory

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## **Test Report** No. CANEC1300373503 Date: 11 Jan 2013 Page 2 of 5

Test Results:

#### **Test Part Description:**

Specimen No. SGS Sample ID Description

1 CAN13-003735.002 METAL OXIDE FILM RESISTORS RSFB & RSFS & RY(mixed)

#### Remarks:

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

### Elementary Analysis & Flame Retardants

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)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</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. CANEC1300373503		Date: 11	Jan 2013	Page 3 of 5
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</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

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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No. CANEC1300373503

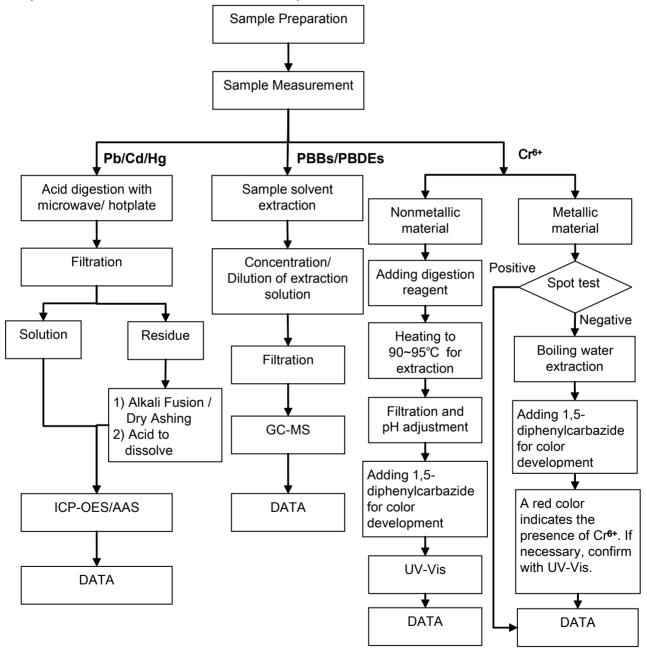
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Date: 11 Jan 2013

#### **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 (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).



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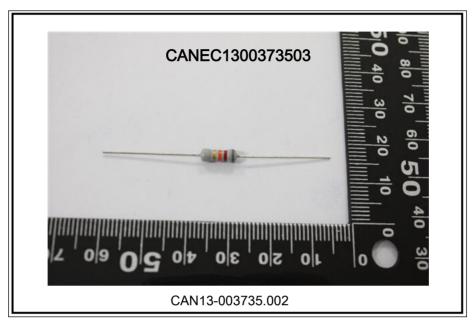


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Date: 11 Jan 2013

Sample photo:



SGS authenticate the photo on original report only

\*\*\* End of Report \*\*\*

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**Test Report** No. CANEC1302376501 Date: 11 Mar 2013 Page 1 of 14

YUEQING BOYUAN ELECTRONIC WIRE&CABLE CO.,LTD NO.89 SHAHONG RD BAIXIANG YUEQING ZHEJIANG CHINA

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

SGS Job No. : CP13-007223 - SZ

Tested Sample Info.: 2468,1015

Client Ref. Info.: Plastic insulation/black,brown,red,orange,yellow,green,blue,purple,

gray, white, tinned or bare copper conductor.

Model No.:PLEASE SEE REMARK

Date of Sample Received: 28 Feb 2013

Testing Period: 28 Feb 2013 - 08 Mar 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.

Trophy Zhang
Approved Signatory

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No. CANEC1302376501

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Test Results:

#### **Test Part Description:**

Specimen No.	SGS Sample ID	Description
1	CAN13-023765.001	White plastic w/ red printing (jacket)
2	CAN13-023765.002	Grey plastic w/ black printing (jacket)
3	CAN13-023765.003	Blue plastic w/ black printing (jacket)
4	CAN13-023765.004	Purple plastic w/ white printing (jacket)
5	CAN13-023765.005	Green plastic w/ black printing (jacket)
6	CAN13-023765.006	Orange plastic w/ black printing (jacket)
7	CAN13-023765.007	Red plastic w/ black printing (jacket)
8	CAN13-023765.008	Brown plastic w/ black printing (jacket)
9	CAN13-023765.009	Black plastic w/ white printing (jacket)
10	CAN13-023765.010	Yellow plastic w/ black printing (jacket)
11	CAN13-023765.011	Silvery metal

#### 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 Colorimetric Method using UV-Vis.
- (5) Determination of PBBs / PBDEs content by GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>	<u>002</u>	<u>003</u>
Cadmium (Cd)	100	mg/kg	2	ND	ND	ND
Lead (Pb)	1,000	mg/kg	2	ND	ND	ND
Mercury (Hg)	1,000	mg/kg	2	ND	ND	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND	ND	ND
Sum of PBBs	1,000	mg/kg	-	ND	ND	ND
Monobromobiphenyl	-	mg/kg	5	ND	ND	ND

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Julius of the content of the sample(s) tested.



Test Report	No. CANEC1302376501		Date: 11	Mar 2013	Page 3 o	Page 3 of 14	
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>	<u>002</u>	<u>003</u>	
Dibromobiphenyl	-	mg/kg	5	ND	ND	ND	
Tribromobiphenyl	-	mg/kg	5	ND	ND	ND	
Tetrabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Pentabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Hexabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Heptabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Octabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Nonabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Decabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Sum of PBDEs	1,000	mg/kg	-	ND	ND	ND	
Monobromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Dibromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Tribromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Octabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Decabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
<b>T</b> (1) (2)		11. 2	MDI	224	225	222	
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>004</u>	<u>005</u>	<u>006</u>	
Cadmium (Cd)	100	mg/kg	2	ND	ND	ND	
Lead (Pb)	1,000	mg/kg	2	ND	ND	ND	
Mercury (Hg)	1,000	mg/kg	2	ND	ND	ND	
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND	ND	ND	
Sum of PBBs	1,000	mg/kg	-	ND	ND	ND	
Monobromobiphenyl	-	mg/kg	5	ND	ND	ND	
Dibromobiphenyl	-	mg/kg	5	ND	ND	ND	
Tribromobiphenyl	-	mg/kg	5	ND	ND	ND	
Tetrabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Pentabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Hexabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Heptabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Octabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Nonabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Decabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Sum of PBDEs	1,000	mg/kg	-	ND	ND	ND	
Monobromodiphenyl ether	-	mg/kg	5	ND	ND	ND	

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Test Report	No. CANEC130237650	01	Date: 11	Mar 2013	Page 4	Page 4 of 14	
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>004</u>	<u>005</u>	<u>006</u>	
Dibromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Tribromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Octabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Decabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Test Item(s)	<u>Limit</u>	<u>Unit</u>	MDL	<u>007</u>	<u>008</u>	<u>009</u>	
Cadmium (Cd)	100	mg/kg	2	ND	ND	ND	
Lead (Pb)	1,000	mg/kg	2	ND	ND	ND	
Mercury (Hg)	1,000	mg/kg	2	ND	ND	ND	
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND	ND	ND	
Sum of PBBs	1,000	mg/kg	-	ND	ND	ND	
Monobromobiphenyl	-	mg/kg	5	ND	ND	ND	
Dibromobiphenyl	-	mg/kg	5	ND	ND	ND	
Tribromobiphenyl	-	mg/kg	5	ND	ND	ND	
Tetrabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Pentabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Hexabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Heptabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Octabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Nonabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Decabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Sum of PBDEs	1,000	mg/kg	-	ND	ND	ND	
Monobromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Dibromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Tribromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Octabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Decabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	

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Test Report	No. CANEC1302376501		Date: 11 Mar 2013		Page 5 of 14
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>010</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	
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

#### 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.

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Test Report	No. CANEC1302376501		Date: 11 Mar 2013		Page 6 of 14
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>011</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)	-	-	$\Diamond$	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	
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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REMARK:

UL STYLE:1007 1017 1032 1185 1430 1569 1605 1672 1015 1028 1061 1283 1509

1571 1617 1743 1016 1030 1095 1347 1533 1581 1618 2127 2464 2532 2576

2876 2933 2970 20288 2405 2468 2547 2854 2877 2961 20002 20080;

CCC STYLE:60227IEC02(RV) 60227IEC06(RV) 60227IEC08(RV-90) AVR

60227IEC52(RVV) 60227IEC53(RVV) AVVR;

CQC STYLE:QVR QVR-105;

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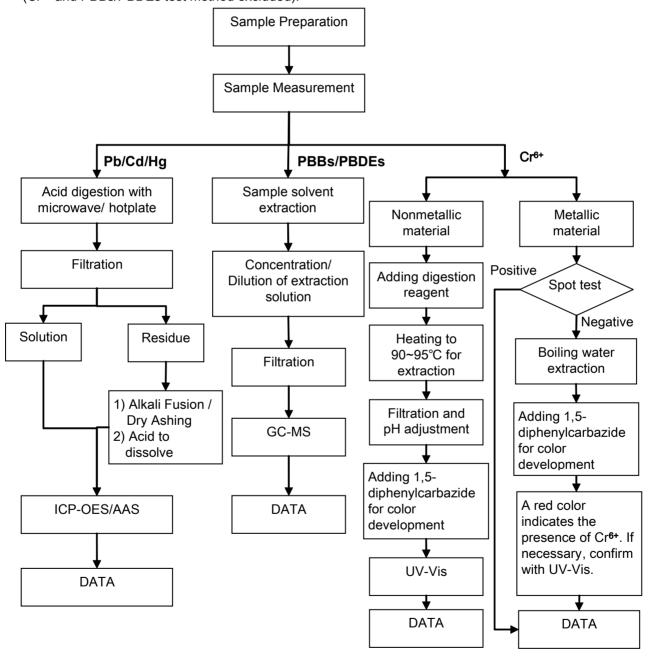
Date: 11 Mar 2013

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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 (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).



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Sample photo:

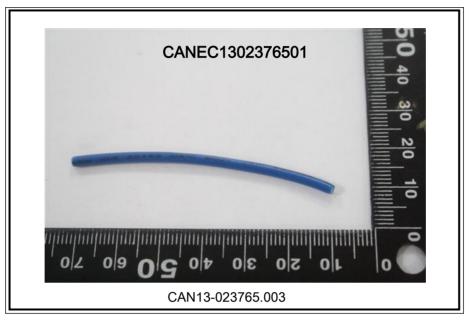




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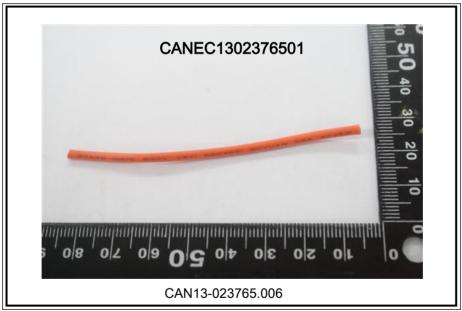
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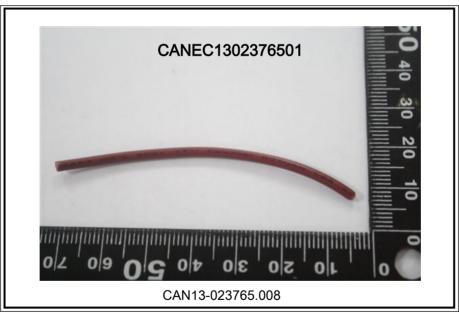


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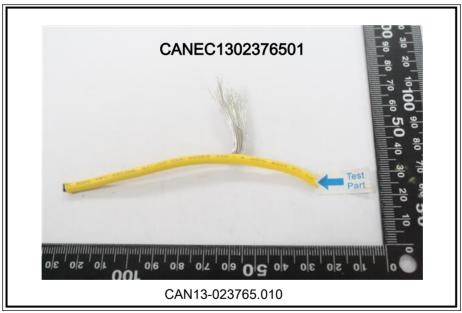


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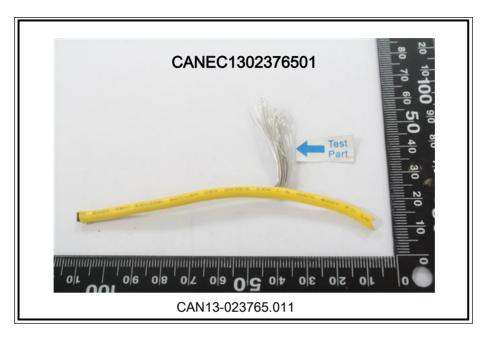
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**Report No.** RLNBF000132750003 Page 1 of 4

Applicant YUEQING JINSHI DIANDU CO.,LTD

Address AS SOUTH TARIM ROAD42, NORTH WHITE ELEPHANT YUEQING CITY, ZHEJIANG

PROVINCE, CHINA

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

Sample Name electroplate Sn

Material brass

Sample Received Date Apr. 1, 2013

Testing Period Apr. 1, 2013 to Apr. 7, 2013

**Test Requested** As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg),

Hexavalent Chromium(Cr(VI)) in the plating of submitted sample(s).

#### **Test Method**

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	Refer to IEC 62321:2008 Ed.1 *	ICP-OES
Cadmium(Cd)	Refer to IEC 62321:2008 Ed.1 *	ICP-OES
Mercury(Hg)	Refer to IEC 62321:2008 Ed.1 *	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis

<sup>\*=</sup>Appropriate acid is used for deplating, and the solution is analyzed by ICP-OES.

**Test Result(s)** Please refer to the following page(s).

Tested by

Approved by

Sha GETTIE Wei Min NB03

Reviewed by

Date

Apr. 7, 2013

Wei Miao

No. 1382099960

Centre Testing International(Ningbo)Co.,ltd. 7-8/F/.,Building A,No.750.Chuangyuan Road,Gaoxin District,Ningbo,Zhejiang,China

Approved Signatory



**Report No.** RLNBF000132750003

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#### Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	222 mg/kg	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	Negative	/

**Tested Sample/Part Description** 

Silvery plating

Note:

The washed plating had been dissolved totally tested for Lead, Cadmium,

Mercury.

-MDL = Method Detection Limit

-N.D. = Not Detected (< MDL)

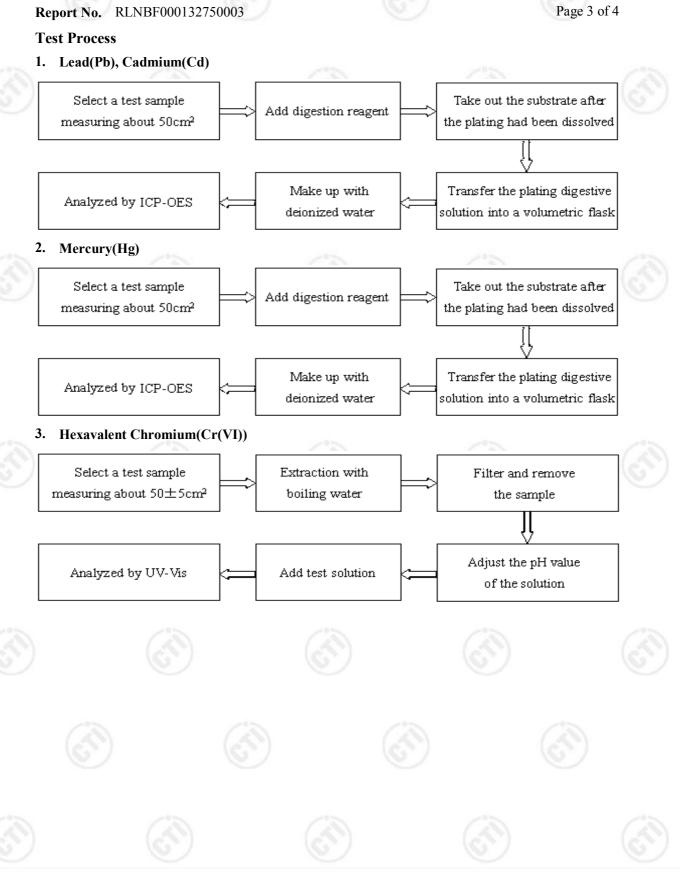
-mg/kg = ppm = parts per million

-Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg with 50cm<sup>2</sup> sample surface area used.











**Report No.** RLNBF000132750003

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Photo(s) of the sample(s)



\*\*\* End of report \*\*\*

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**Report No.** RLNBF000132750001

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**Applicant** 

YUEQING JINSHI DIANDU CO.,LTD

Address

AS SOUTH TARIM ROAD42, NORTH WHITE ELEPHANT YUEQING CITY, ZHEJIANG

PROVINCE, CHINA

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

Sample Name

electroplate Zn

Material

iron

Sample Received Date

Apr. 1, 2013

**Testing Period** 

Apr. 1, 2013 to Apr. 7, 2013

**Test Requested** 

As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)) in the plating of submitted sample(s).

#### **Test Method**

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	Refer to IEC 62321:2008 Ed.1 *	ICP-OES
Cadmium(Cd)	Refer to IEC 62321:2008 Ed.1 *	ICP-OES
Mercury(Hg)	Refer to IEC 62321:2008 Ed.1 *	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis

<sup>\*=</sup>Appropriate acid is used for deplating, and the solution is analyzed by ICP-OES.

Test Result(s)

Please refer to the following page(s).

Tested

Approved by

Reviewed by

Date

Apr. 7, 2013

Wei Miao

No. 1382099960

Approved Signatory Centre Testing International(Ningbo)Co.,ltd. 7-8/F/.,Building A,No.750.Chuangyuan Road,Gaoxin District,Ningbo,Zhejiang,China



### **Report No.** RLNBF000132750001

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#### Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	Negative	/

**Tested Sample/Part Description** 

Light blue plating

Note:

The washed plating had been dissolved totally tested for Lead, Cadmium,

Mercury.

-MDL = Method Detection Limit

-N.D. = Not Detected (< MDL)

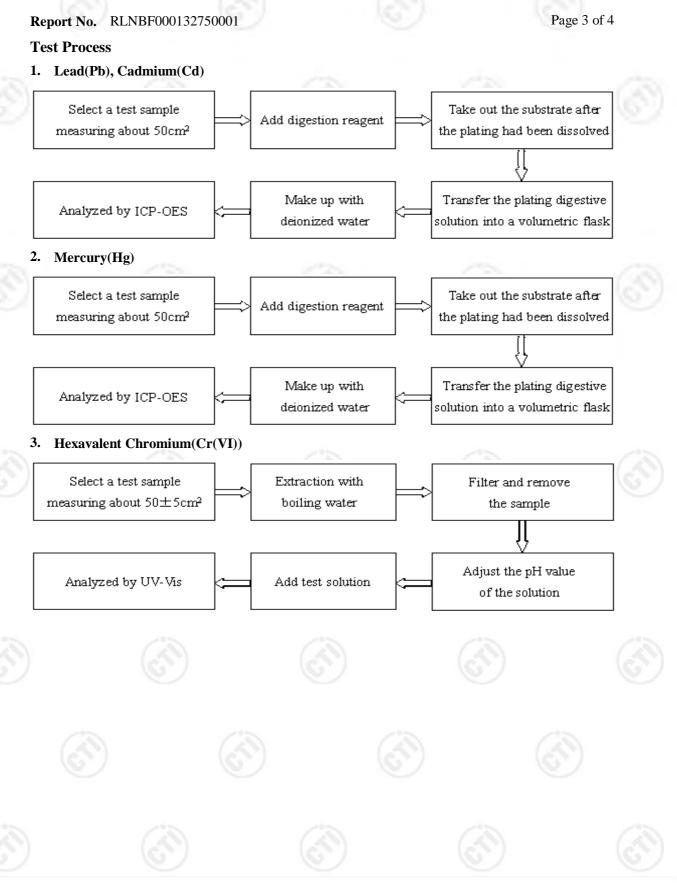
-mg/kg = ppm = parts per million

-Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02~mg/kg with  $50cm^2$  sample surface area used.



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**Report No.** RLNBF000132750001

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Photo(s) of the sample(s)



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