



**ICP Test Report Certification Packet**

Company name: Littelfuse, Inc.  
Product Series: LFJ – Class J Series Fuseblocks  
Product #: LFJ 30A, LFJ 60A, LFJ 100A, LFJ601003CID  
Issue Date: September 2, 2011

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

Issued by:   
KRISTEEN BACILA

\_\_\_\_\_  
<Global EHS Engineer>

(1) Parts, sub-materials and unit parts

This document covers the JLS RoHS-Compliant series products manufactured by Littelfuse, Inc.

< Raw Materials Used  
Please see Table 1

(2) The ICP data on all measurable substances

Please see appropriate pages as identified in Table 1

Remarks :



**Table 1: List of Raw Materials covered by this report**

<b>Total Parts</b>	<b>Raw Material Part Number</b>	<b>Raw Material Description</b>	<b>Page(s)</b>
1	NA	Base (JLS 30A & 60 A)	3-8
2	NA	Indicator	9-10
3	NA	Stopper	11-12
4	NA	Holder & Clip (JLS 30A) (Phosphor Bronze)	13-18
5	NA	Spring (65Mn)	19-22
6	NA	Terminal Block (Aluminum)	23-27
7	NA	Set screws (JLS 100A)	23-27
8	NA	Screws , Nuts & Bolts (Zinc Plated Steel)	28-32
9	NA	Clip (JLS 60A & 100A) (T3 Copper Alloy)	33-37
10	NA	Spring (JLS 60A) (304 Steel)	38-42
11	NA	Base (JLS 100A)	43-48
12	NA	Neon Components	49-68
13	NA	Tin Plating	69-72
14	NA	Zinc Plating	73-76



**Test Report**

Number : TWNC00216853S1

Applicant: Littelfuse Inc.  
LIMA Technology Center, Lipa City,  
Malvar, Batangas

Date : Jul 29, 2011  
This is to supersede  
report No. TWNC00216853  
dated Jul 25, 2011

Sample Description:

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

Part Description : PBT Valox  
Date Sample Received : Jul 19, 2011  
Date Test Started : Jul 19, 2011

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Test Conducted :

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

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Authorized By:  
On Behalf Of Intertek Testing Services  
Taiwan Limited



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K. Y. Liang  
Director

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approval of the laboratory.

**Intertek Testing Services Taiwan Ltd.**

8F., No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan, R.O.C.

全國公證檢驗股份有限公司

114 台北市內湖區瑞光路 423 號 8 樓

Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2400 · 6602-2401



Number : TWNC00216853S1

Test Conducted

( I ) Test Result Summary :

<u>Test Item</u>	<u>Result (ppm)</u>
	<u>Black Plastic</u>
<b>Heavy Metal</b>	
Cadmium (Cd) content	ND
Lead (Pb) content	28
Mercury (Hg) content	ND
Chromium VI (Cr <sup>6+</sup> ) content	ND
<b>Polybrominated Biphenyls (PBBs)</b>	
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
<b>Polybrominated Diphenyl Ethers (PBDEs)</b>	
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
<b>Halogen Content</b>	
Fluorine (F)	ND
Chlorine (Cl)	ND
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg  
ND = Not detected

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

Date Sample Received : Jul 19, 2011

Test Period : Jul 19, 2011 To Jul 22, 2011





Number : TWNC00216853S1

Test Conducted

( II ) RoHS Requirement:

<u>Restricted Substances</u>	<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 Ehters (PBDEs)	0.1% (1000ppm)

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

( III ) Test Method:

<u>Test Item</u>	<u>Test Method</u>	<u>Reporting Limit</u>
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 calorimetric bomb with oxygen and determined by ion chromatography	50 ppm

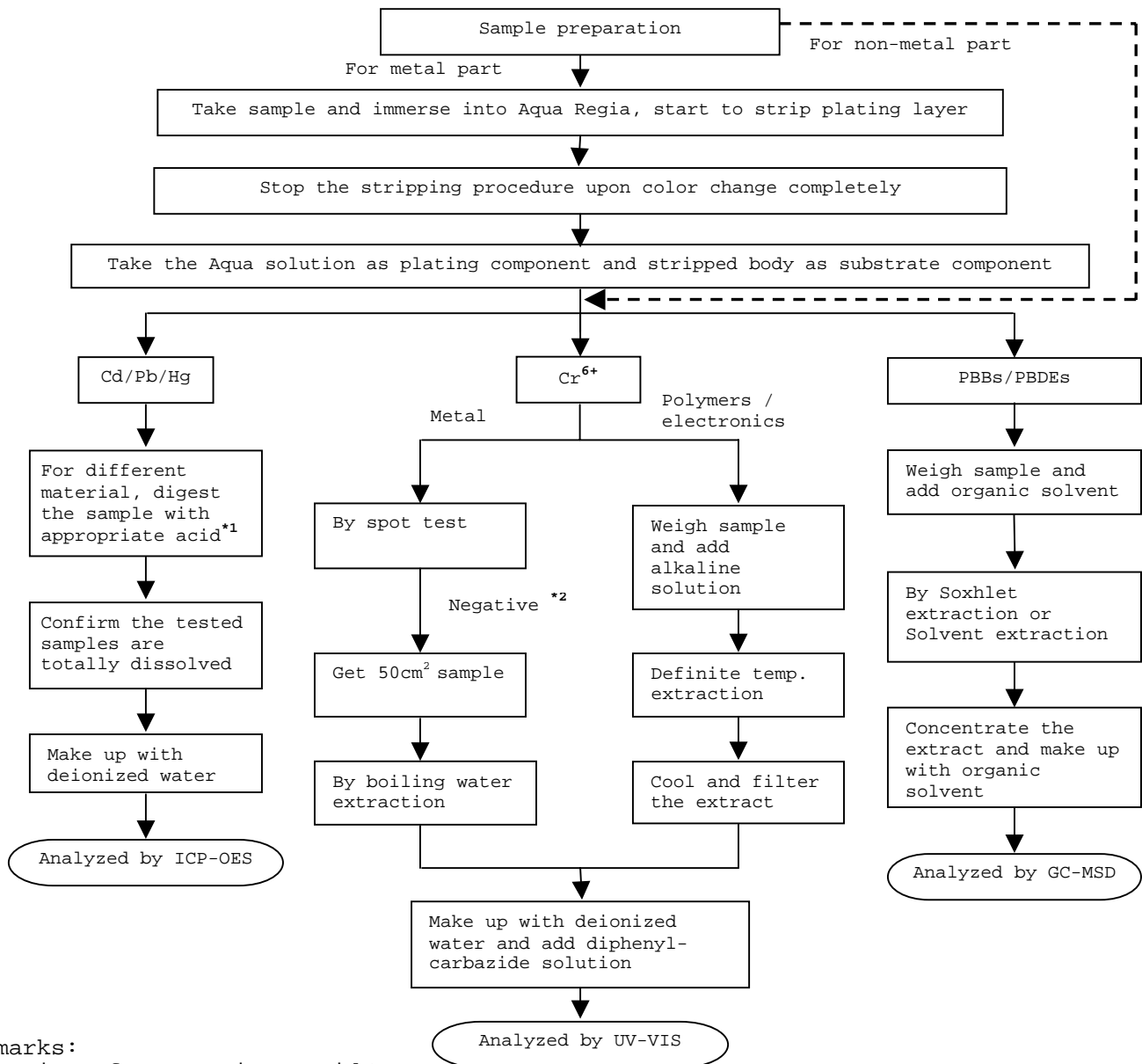
Remark: Reporting limit = Quantitation limit of analyte in sample

Test Conducted

(IV) Measurement Flowchart:

Test for Cd/Pb/Hg/Chromium (VI)/PBBS/PBDES Contents

Reference Standard: IEC 62321 edition 1.0:2008



Remarks:

\*1: List of Appropriate Acid:

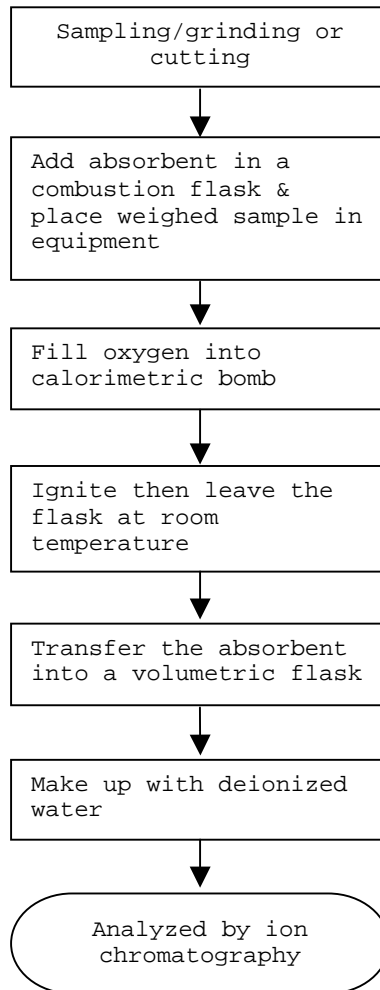
Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> , HCl, HF
Electronics	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

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

Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content  
Reference Standard : EN 14582



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End of Report

Test Conducted

Photo



To: 黄小姐 收

Bayer MaterialScience



To whom it may concern

Confirmation of Compliance with  
2002/53/EC, 2002/95/EC, 2002/96/EC, 2003/11/EC  
and SJ/T11363-2006:

February 19<sup>th</sup>, 2008

Bayer MaterialScience AG

ID-HSEQ  
Global Product Regulatory Affairs

61388 Leverkusen  
Germany

Tel: +49 214 30 61096  
Fax: +49 214 30 31754  
bernd.geisler@  
bayerbms.com  
www.bayerbms.com

In response to your request, Bayer MaterialScience's Makrotron, Bayblend, Desmopan, Makroblend, Apac, Texdn, Makrofol and Bayfol grades comply with the requirements of:

- EU Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (called RoHS Directive) and its amendments (2005/618/EC and others)
- EU Directive 2002/96/EC on waste electrical and electronic equipment (called WEEE Directive) and its amendments

(A few of our Makrotron, Makroblend, Makrofol and Apac types contain a non-regulated brominated flame retardant. We would like to make you aware of the parts identification requirement for these grades to allow the selective treatment according to Annex II)

- EU Directive 2003/11/EC, amending for the 24th time Council Directive 76/769/EEC, relating to restrictions on the marketing and use of certain dangerous substances and preparations (pentabromodiphenyl ether, octabromodiphenyl ether)

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Chairman of the  
Supervisory Board:  
Wolfgang Pflichtig

Registered office:  
Leverkusen  
Local Court of Cologne  
HRB 49892

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Our advice does not release you from the obligation to verify the information currently provided - especially that contained in our safety data and technical data sheets - and to hold our products as to their suitability for the intended purposes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, solely your own responsibility.

Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.

## Bayer MaterialScience



2009-02-19

- 2 -

- EU Directive 2000/53/EC (End-of-Life Vehicles Regulation) and its amendments (2002/625/EC and others)
- Chinese SJ/T11363-2006 (called China-RoHS)

Compounds of cadmium, lead, mercury and hexavalent chromium, flame retardants PBB and PBDE including pentabromodiphenyl ether (CAS-No. 32534-81-9) and octabromodiphenyl ether (CAS-No. 32536-52-0), have not been intentionally added for the production of all Makrolon, Bayblend, Desmopan, Makroblend, Apec, Texin, Makrofol and Bayfol grades. Their content in these plastics materials is below the specific limits for these substances as defined in the legislations mentioned above.

Lead – 1,000 ppm  
Mercury – 1,000 ppm  
Cadmium – 100 ppm  
Hexavalent Chromium – 1,000 ppm  
Polybrominated biphenyls (PBB) – 1,000 ppm  
Polybrominated diphenyl ether (PBDE) – 1,000 ppm

The presence of analytically detectable traces of the above mentioned heavy metals or heavy metal compounds, which occur widely and have possibly been introduced into our product via the raw materials, auxiliaries and additives, can not be excluded. Although these products have not been analysed for these metals, we would not expect the total of these metals to exceed 100 ppm.

We hope you will find this information useful. If we may be of any further assistance, please feel free to contact us.

Bayer MaterialScience AG

i.v.

Bernd Getzie  
HSEQ - Global Product Regulatory Affairs



DuPont Kabushiki Kaisha  
Performance Polymers  
19-2 Kiyohara-Kogyodanchi  
Utsunomiya-shi, Tochigi 321-3231 Japan

## Statement

We hereby declare that during manufacture of tradename products shown below

**Crastin®** PBT polyester resin\*  
**Delrin®** acetal resin  
**Elvamide®** nylon multipolymer resin  
**Minlon®** mineral reinforced nylon resin  
**Rynite®** PET polyester resin\*  
**Thermx®** PCT high performance polyester resin\*  
**VespeI®** parts & shapes  
**Zenite®** LCP liquid crystal polymer resin  
**Zytel®** nylon resin\*  
**Zytel® HTN** high performance polyamide resin\*

neither cadmium, hexavalent chromium, lead, mercury and their compounds, nor PBBs (polybrominated biphenyl) and PBDEs (polybrominated diphenyl ether) are intentionally added.  
\*\*

To the best of our knowledge, none of our raw material suppliers use these substances in the manufacture of their products. However, please note that we do not routinely analyze for substances not intentionally added.

This statement is based on our current level of knowledge and covers commercial and experimental resins as supplied by DuPont at the date of issue. Since conditions of use are outside DuPont's control, DuPont makes no warranties, express or implied, and assumes no liability in connection with any use of this information.

Kazukuni Saito  
Manager - Regulatory Affairs – Asia Pacific



## Heavy metals & Brominated Flame Retardant additive

Representative samples of above or similar materials have been examined to assure that potential trace contamination levels are below the required limits. Therefore the levels of heavy metals, PBBs and PBDEs if present at all, are expected to be below the limits of following:

- **RoHS** / Directive on the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment (2002/95/EC), as amended by the European Council Decision of December 2004, effective July 1, 2006, and as enacted by member states which restricts or prohibits the placing on the EU market of new electronic and electrical equipment containing more than set maximum concentrations of cadmium (0.01 wt%), hexavalent chromium (0.1 wt%), lead (0.1 wt%), mercury (0.1 wt%), PBB (0.1 wt%) and PBDE (0.1 wt%) flame retardants.
- **China RoHS** / PRC Administrative Measure on the Control of Pollution Caused by Electronic Information Products (SJ/T 11363-2006), effective March 1, 2007 which regulates placing on the China market new electronic information products containing more than set maximum concentrations of cadmium (0.01 wt%), hexavalent chromium (0.1 wt%), lead (0.1 wt%), mercury (0.1 wt%), PBB (0.1 wt%) and PBDE (0.1 wt%) flame retardants.
- **WEEE** / Directive on Waste Electrical and Electronic Equipment (2002/96/EC), effective July 1, 2005, which requires that brominated flame-retardant additives have to be identified if present, for purposes of separate collection of parts at end of life.

\* Some of the Flame-Retarded (FR) tradename resins highlighted above, contain a brominated (halogenated) flame retardant. FR substances are not any of the FR's restricted by above 2002/95/EC, 2003/11/EC or SJ/T 11363-2006 – see above. The specific chemical identification of flame retardant substance(s) in DuPont resin is proprietary information. Refer to product data sheet for Part Marking code, according to ISO 1043-4, which is a plastics industry standard for identifying the type of flame retardant additive, when intentionally added.

\*\* As defined in the EU Directive 2000/53/EC and the U.S. Toxic Substances Control Act regulations, 40 CFR 710.3(d) and 40 CFR 710.20.3(m).





测试报告

No. SHAEC1015053502

日期: 2010年10月25日 第1页,共6页

安徽鑫科新材料股份有限公司  
安徽省芜湖市经济技术开发区凤鸣湖南路21号

以下测试之样品是由申请者所提供及确认: 锡磷青铜带 Q5191

SGS工作编号: SP10-035157 - SH  
 样品接收日期: 2010年10月20日  
 测试周期: 2010年10月20日 - 2010年10月25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

Fan Jingjie, JJ范晶捷  
批准签发人

本报告是发布日期为2010年10月25日编号为SHAEC1015053501英文检测报告的中文译本。如有异议, 以英文版本为准。

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测试报告

No. SHAEC1015053502

日期: 2010年10月25日 第2页, 共6页

测试结果:

样品外观描述:

样品编号	SGS样品ID	描述
1	SHA10-150535.001	镀色金属片

备注:

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

RoHS指令2002/95/EC

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

测试项目	限值	单位	MDL	007
镉(Cd)	100	mg/kg	2	ND
铅(Pb)	1,000	mg/kg	2	11
汞(Hg)	1,000	mg/kg	2	ND
六价铬(CrVI)	-	-	◇	Negative

备注:

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

元素

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测试报告

No. SHAEC1015053502

日期: 2010年10月25日

第3页,共6页

测试方法:

参照US EPA 方法3050B:1996测定,采用ICP-OES 进行分析.

测试项目

砷(As)

铍(Be)

单位	MDL	001
mg/kg	10	ND
mg/kg	5	ND

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TEL: (86-21) 61402350 FAX: (86-21) 61493379  
 HL: (86-21) 61428554 Tel: (85-2) 64920350 E: [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

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测试报告

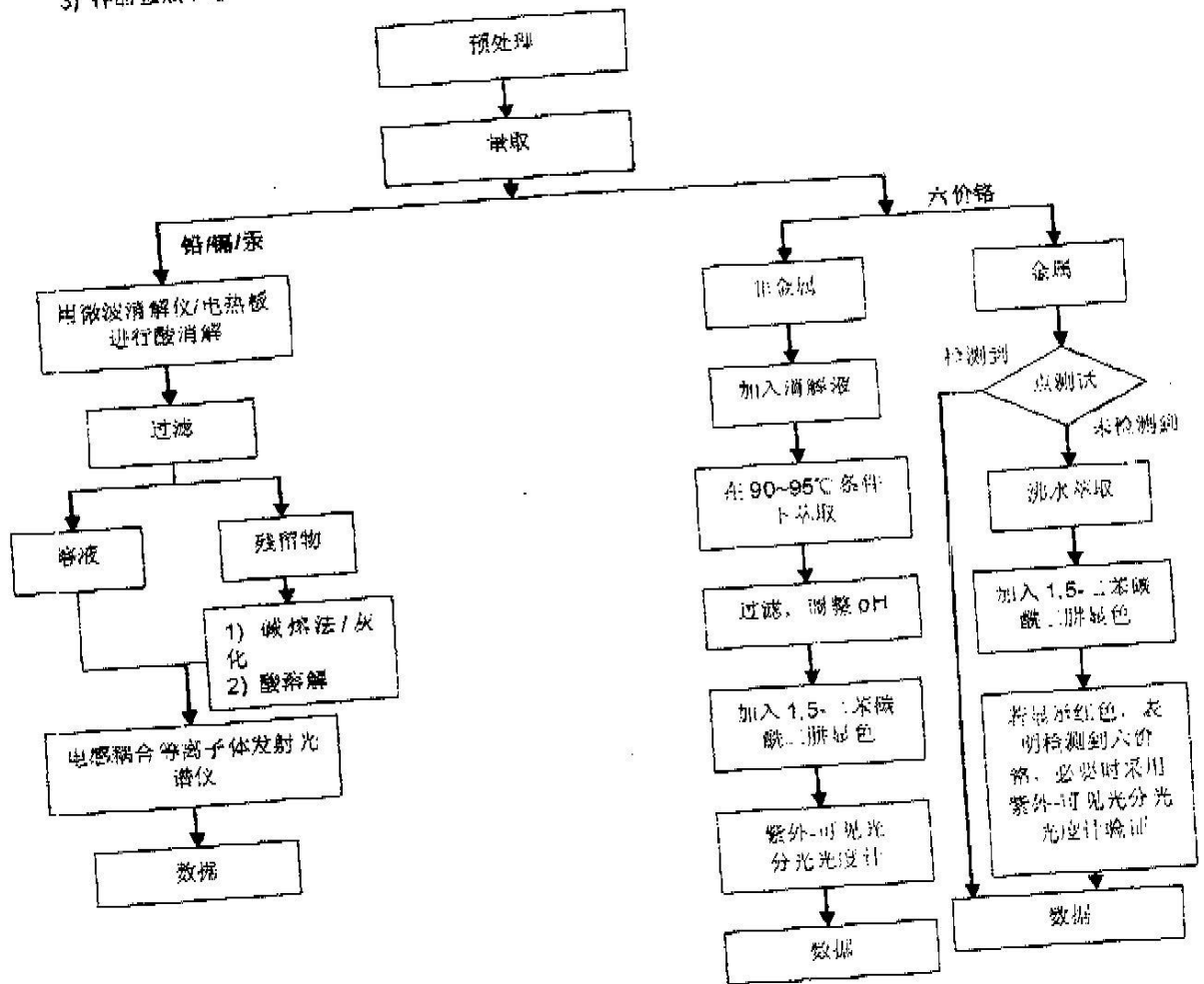
附件

No. SHAEC1015053502

日期: 2010年10月25日 第4页,共6页

RoHS 测试流程图

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



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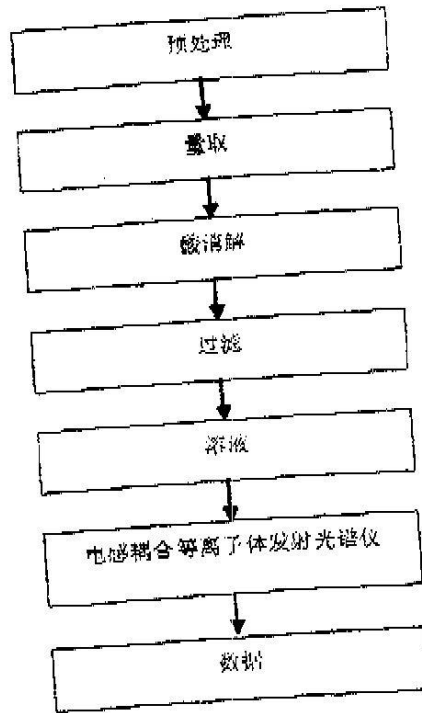
测试报告

No. SHAEC1015053502

日期: 2010年10月25日 第5页,共6页

元素测试流程图

- 1) 分析人员: 魏守良/肖飞
- 2) 项目负责人: 张春华



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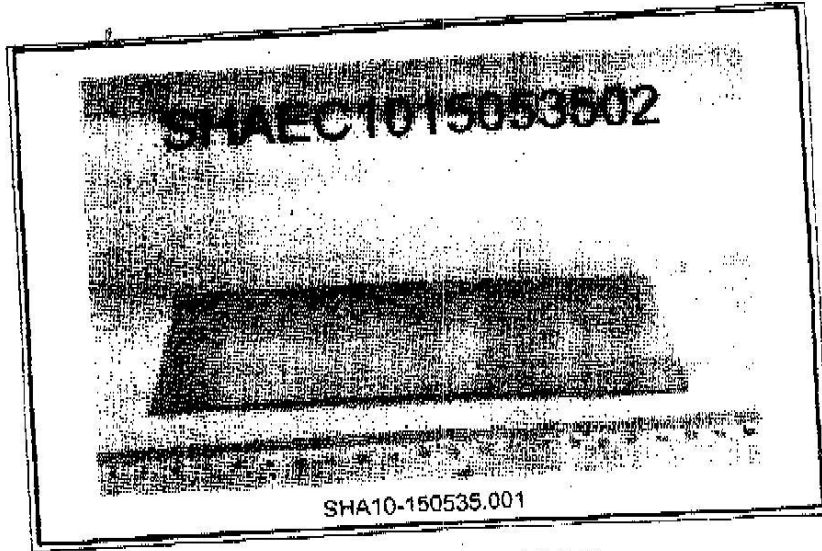
测试报告

No. SHAEC1015053502

日期: 2010年10月25日

第6页,共6页

样品照片:



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3 Baidun Rd 200 Yuzan Road Kefu District Shanghai China 200233  
中国 - 上海 - 徐江路宝山路200号3号楼 邮编: 200233

TEL (86-21) 51427154 FAX (86-21) 51427154  
TEL (86-21) 51427154 FAX (86-21) 51427154  
www.cn.sgs.com  
sgs.china@sgs.com

Member of the SGS Group (SGS SA)



测试报告

No. SHAEC1011167201

日期: 2010年10月06日

第1页,共4页

新余新钢特殊钢有限责任公司  
中国江西省新余市良山镇

以下测试之样品是由申请者所提供及确认: 65钢带

SGS工作编号: SP10-027073 - SH

样品接收日期: 2010年10月04日

测试周期: 2010年10月04日 - 2010年10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, 测试结果与欧盟RoHS指令2002/95/EC以及后续修正指令的要求相符

通标标准技术服务有限公司  
授权签名

Fan Jingjie, JJ范晶捷  
批准签署人

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SGS (China) Technical Services (Shanghai) Co., Ltd.  
上海市浦东新区

3rd Building, No. 889 Yishan Road Xupu District, Shanghai, China 200233  
中国·上海·徐汇区宜山路889号3号楼 邮编: 200233

TEL: (86-21) 61402553 FAX: (86-21) 614953679

[www.cn.sgs.com](http://www.cn.sgs.com)

HL: (86-21) 61402594 HL: (86-21) 64500353

sgs-china@sgs.com



测试报告

No. SHAEC1011167201

日期: 2010年10月06日

第2页,共4页

测试结果:

样品部件外观描述:

样品编号	SGS样品ID	描述
1	SHA10-111672.001	银灰色金属带

备注:

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

RoHS指令2002/95/EC

测试方法: 参照IEC 62321:2008:

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

测试项目	限值	单位	MDL	001
镉(Cd)	100	mg/kg	2	ND
铅(Pb)	1,000	mg/kg	2	ND
汞(Hg)	1,000	mg/kg	2	ND
六价铬(CrVI)	-	-	0	Negative

备注:

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

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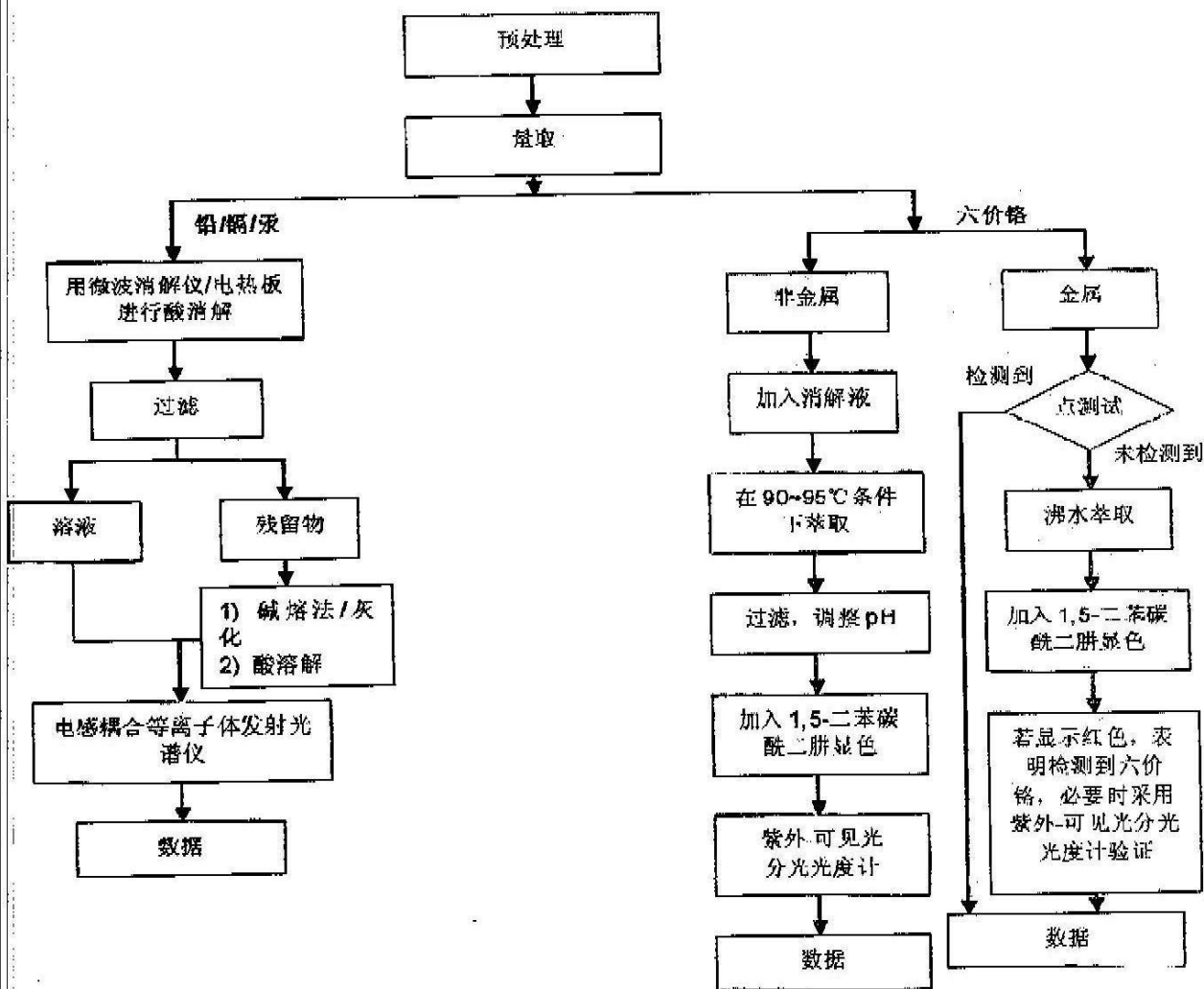
SHCHEM 3660797



附件

## RoHS 测试流程图

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

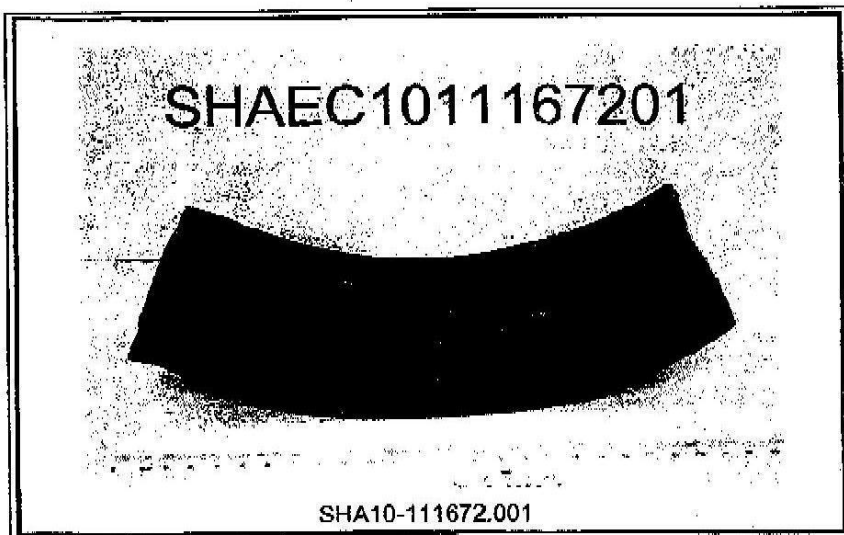


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SHCHEM 3660796

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Test Report

Number : TWNC00216857

Applicant: Littelfuse Inc.  
LIMA Technology Center, Lipa City,  
Malvar, Batangas

Date : Jul 25, 2011

Sample Description:

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

Test Conducted :

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

Authorized By:  
On Behalf Of Intertek Testing Services  
Taiwan Limited



K. Y. Liang  
Director

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approval of the laboratory.



Number : TWNC00216857

Test Conducted

( I ) Test Result Summary :

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

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

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

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

( II ) RoHS Requirement:

<u>Restricted Substances</u>	<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)

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



Number : TWNC00216857

Test Conducted

( III ) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

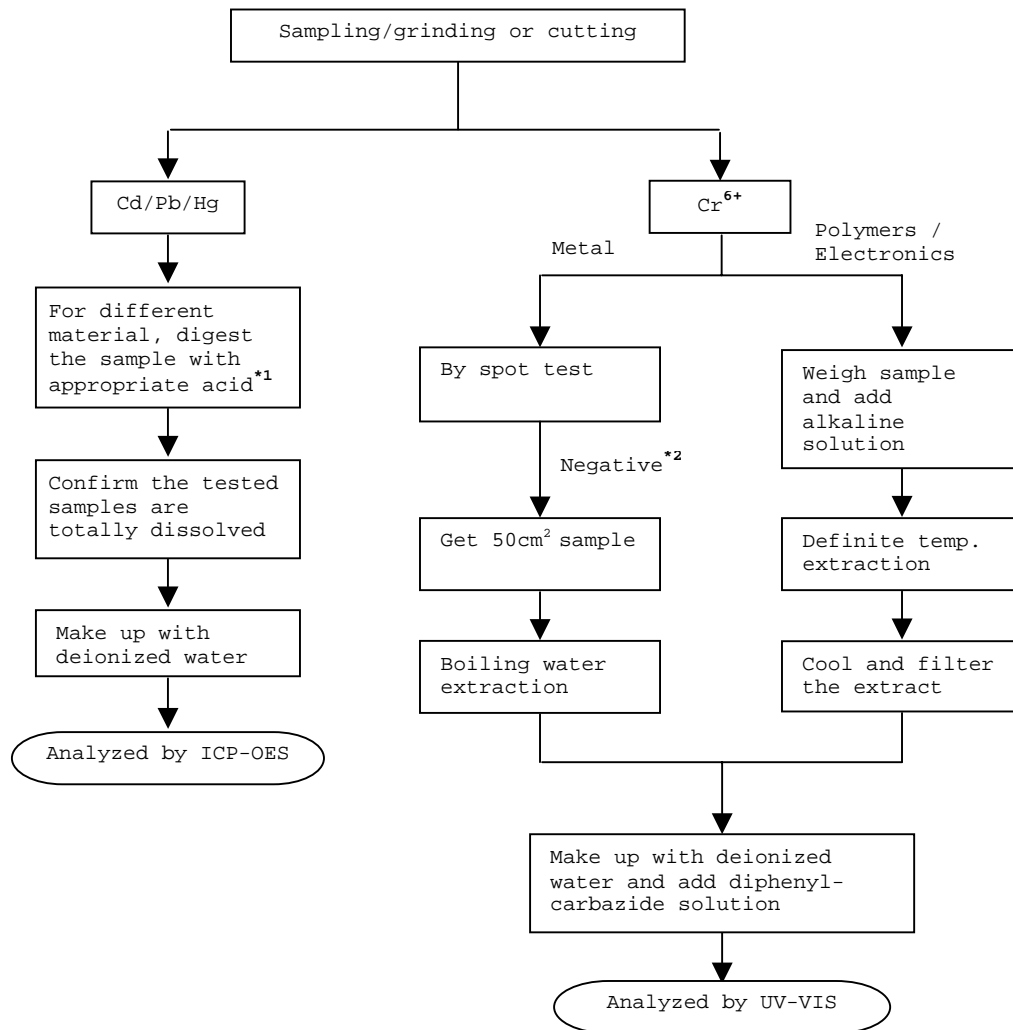
---

Test Conducted

(IV) Measurement Flowchart:

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

Reference Standard : IEC 62321 edition 1.0:2008



Remarks:

\*1: List Of Appropriate Acid :

Material	Acid Added For Digestion
Polymers	HNO <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.

End of Report

Test Conducted

Photo





**Test Report**

Number : TWNC00216854

Applicant: Littelfuse Inc.  
LIMA Technology Center, Lipa City,  
Malvar, Batangas.

Date : Jul 27, 2011

Sample Description:

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

Part Description : Steel  
Date Sample Received : Jul 19, 2011  
Date Test Started : Jul 19, 2011

---

Test Conducted :

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

---

Authorized By:  
On Behalf Of Intertek Testing Services  
Taiwan Limited



---

K. Y. Liang  
Director

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Number : TWNC00216854

Test Conducted

( I ) Test Result Summary :

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

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

Tested Components

- (1) Black Plating Layer
- (2) Silvery Metal Base Material

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

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

( II ) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr <sup>6+</sup> ) Content	0.1% (1000ppm)

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



Number : TWNC00216854

Test Conducted

( III ) Test Method:

<u>Test Item</u>	<u>Test Method</u>	<u>Reporting Limit</u>
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 B, by boiling water extraction and determined by UV-Vis spectrophotometer.	0.02 mg/kg with 50cm <sup>2</sup>

Remark: Reporting limit = Quantitation limit of analyte in sample

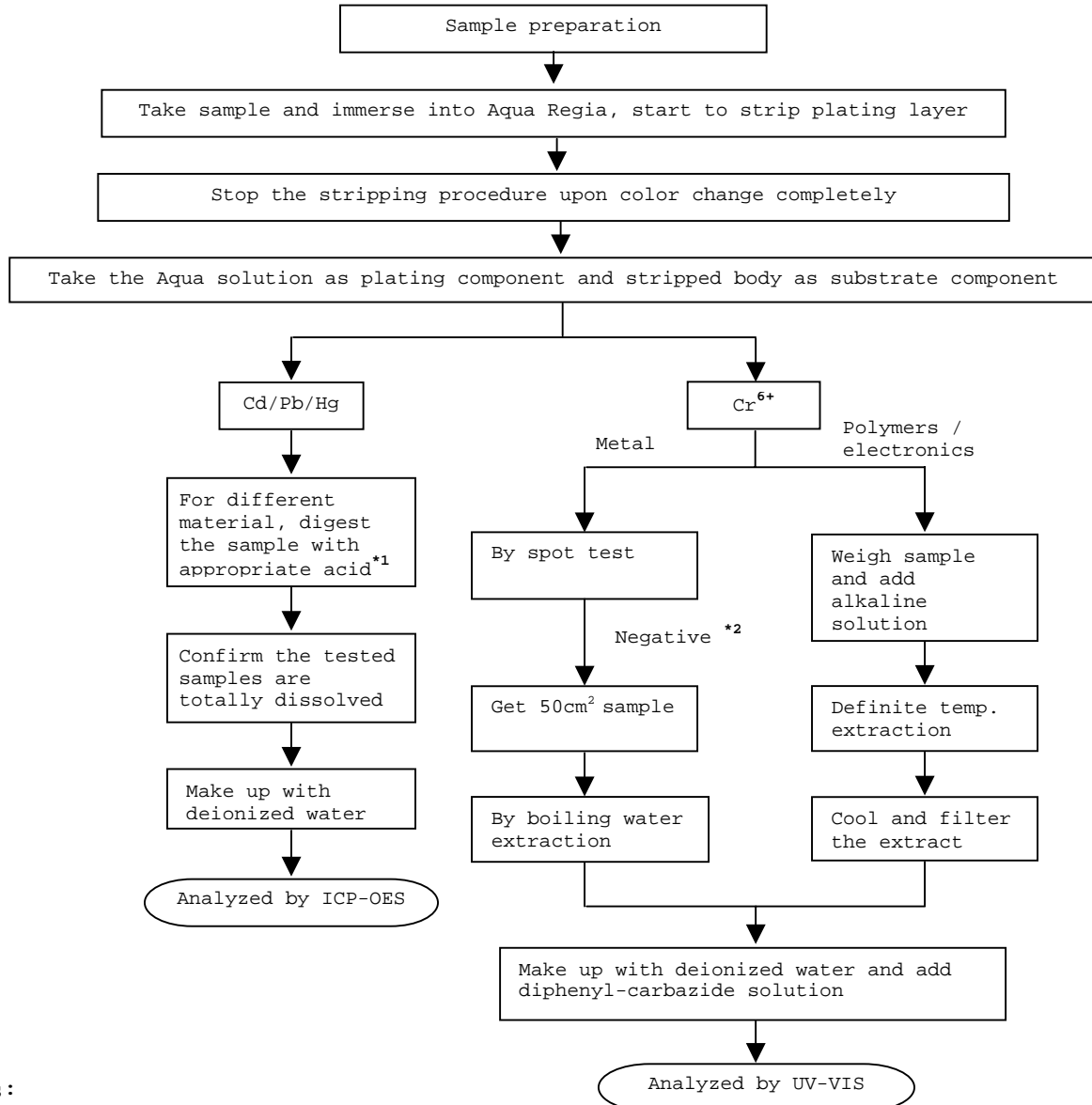
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Test Conducted

(IV) Measurement Flowchart:

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

Reference Standard : IEC 62321 edition 1.0:2008



Remarks:

\*1: List of Appropriate Acid:

Material	Acid Added for Digestion
Polymers	HNO <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.

End of Report

Test Conducted

Photo





Test Report

Number : TWNC00216856

Applicant: Littelfuse Inc.  
LIMA Technology Center, Lipa City,  
Malvar, Batangas

Date : Jul 25, 2011

Sample Description:

One (1) group of submitted samples said to be :  
Part Description : Copper Alloy  
Date Sample Received : Jul 19, 2011  
Date Test Started : Jul 20, 2011

Test Conducted :

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

Authorized By:  
On Behalf Of Intertek Testing Services  
Taiwan Limited



K. Y. Liang  
Director

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Number : TWNC00216856

Test Conducted

( I ) Test Result Summary :

<u>Test Item</u>	<u>Result (ppm)</u>
	<u>Coppery Metal</u>
<b>Heavy Metal</b>	
Cadmium (Cd) content	ND
Lead (Pb) content	46
Mercury (Hg) content	ND
Chromium VI (Cr <sup>6+</sup> ) content (mg/kg with 50cm <sup>2</sup> )	Negative(< 0.02)(#)

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

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

Date Sample Received : Jul 19, 2011

Test Period : Jul 20, 2011 To Jul 25, 2011

( II ) RoHS Requirement:

<u>Restricted Substances</u>	<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)

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

## Test Conducted

## ( III ) Test Method:

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

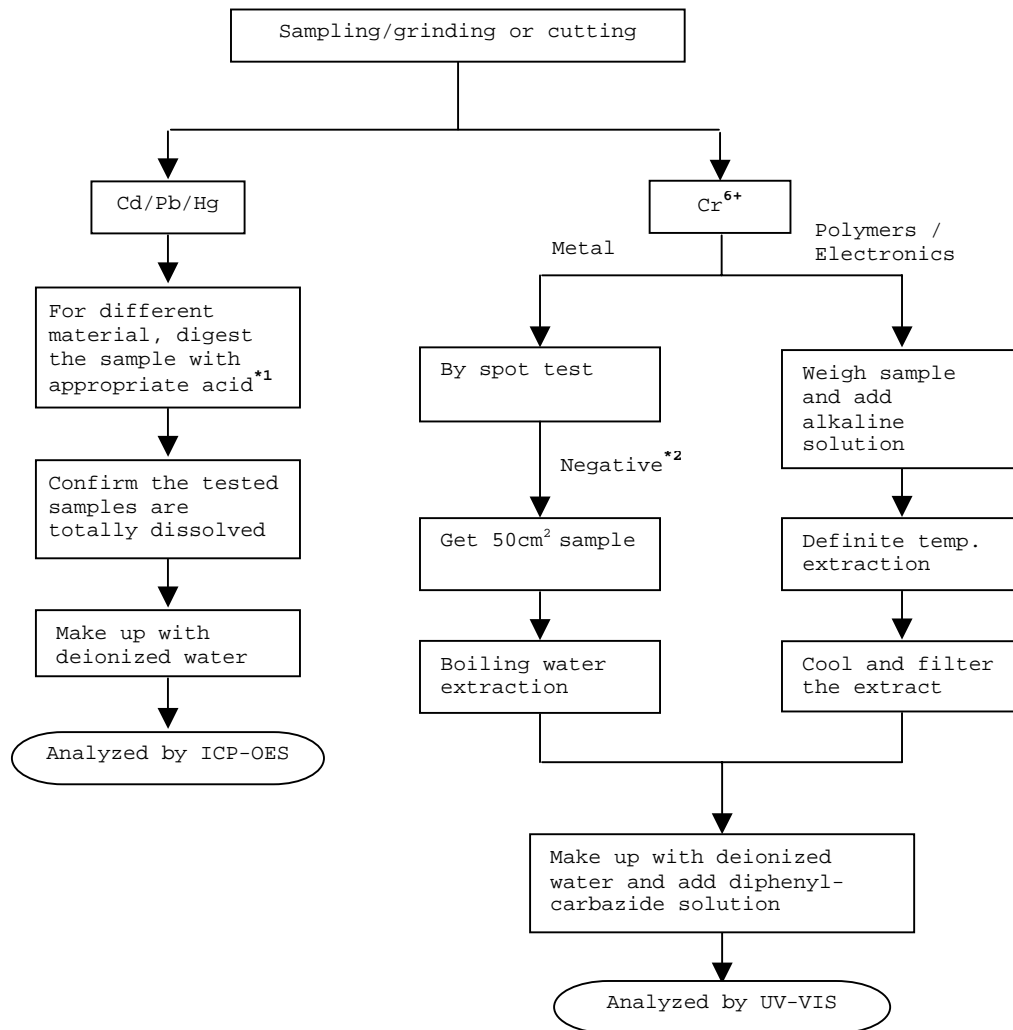
Remark: Reporting limit = Quantitation limit of analyte in sample

---

Test Conducted

(IV) Measurement Flowchart:

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



Remarks:

\*1: List Of Appropriate Acid :

Material	Acid Added For Digestion
Polymers	HNO <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.

End of Report



Test Conducted

Photo





**Test Report**

Number : TWNC00216855

Applicant: Littelfuse Inc.  
LIMA Technology Center, Lipa City,  
Malvar, Batangas

Date : Jul 25, 2011

Sample Description:

One (1) group of submitted samples said to be :  
Part Description : 304 Steel  
Date Sample Received : Jul 19, 2011  
Date Test Started : Jul 20, 2011

Test Conducted :

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

Authorized By:  
On Behalf Of Intertek Testing Services  
Taiwan Limited



K. Y. Liang  
Director

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Number : TWNC00216855

Test Conducted

( I ) Test Result Summary :

<u>Test Item</u>	<u>Result (ppm)</u>
	<u>Silvery Metal</u>
<b>Heavy Metal</b>	
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr <sup>6+</sup> ) content (mg/kg with 50cm <sup>2</sup> )	Negative(< 0.02)(#)

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

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

Date Sample Received : Jul 19, 2011

Test Period : Jul 20, 2011 To Jul 25, 2011

( II ) RoHS Requirement:

<u>Restricted Substances</u>	<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)

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



Number : TWNC00216855

Test Conducted

( III ) Test Method:

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

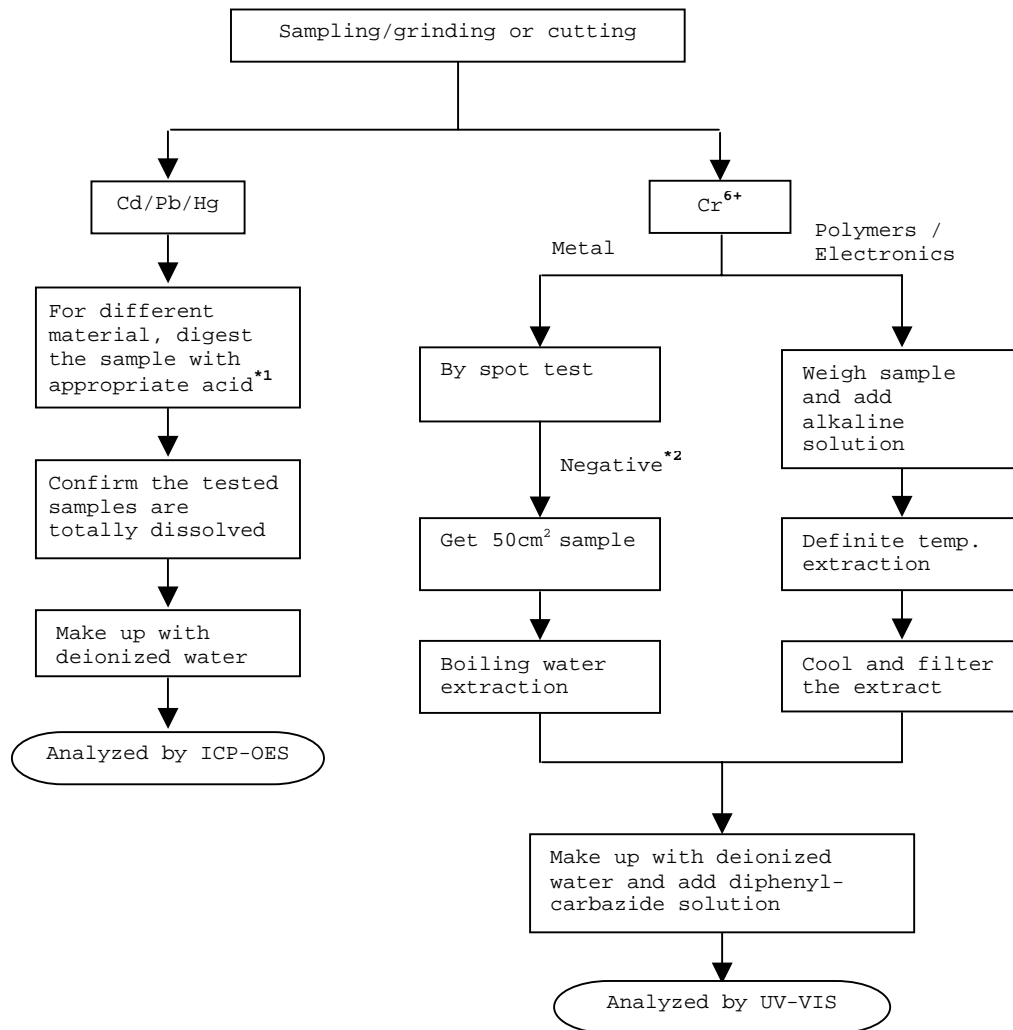
Remark: Reporting limit = Quantitation limit of analyte in sample

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Test Conducted

(IV) Measurement Flowchart:

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



Remarks:

\*1: List Of Appropriate Acid :

Material	Acid Added For Digestion
Polymers	HNO <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.

End of Report

Test Conducted

Photo





**Test Report**

No. SH10090106/ CHEM

Date: Sep. 9, 2010

Page 1 of 6

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

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

SGS Ref No. : 10384398-2  
Model No. : 618(618-2)/9001  
Supplier : JIAGANG SYNTHETIC MATERIALS CO.,LTD OF JIAXING  
Date of Sample Received : SEP 04, 2010  
Testing Period : SEP 04, 2010 TO SEP 09, 2010

Test Method : Please refer to next page(s).

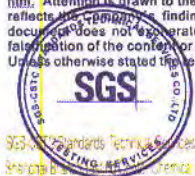
Test Result(s) : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of  
SGS-CSTC Chemical Laboratory

Fan Jingjie, JJ  
Approved Signatory

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Singapore Standards Reference Laboratory 中国·上海·宜山路889号3号楼 邮编: 200233 HL: (86-21) 61402594 HL: (86-21) 54500353 sgs.china@sgs.com

Member of the SGS Group (SGS SA)





# Test Report

No. SH10090106/ CHEM

Date: Sep. 9, 2010

Page 2 of 6

## Test Results:

Description for specimen 1 : Black material

### A: RoHS Directive 2002/95/EC

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

### Note:

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

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### B: PAHs (Polynuclear Aromatic Hydrocarbons)

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

Note:

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

### ZEK 01.2-08 : Restraining maximum values for products

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

Remark:

\*\* = Only PAH substances >0.2 mg/kg are taken into account while calculating the sum of PAHs

\*\*\* = In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material which indented to be put in the mouth by additional specific migration tests of PAH components based on DIN EN 1186ff and §64 LFGB 80.30-1. The conclusion of the migration test results must be made based on food law criteria.

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

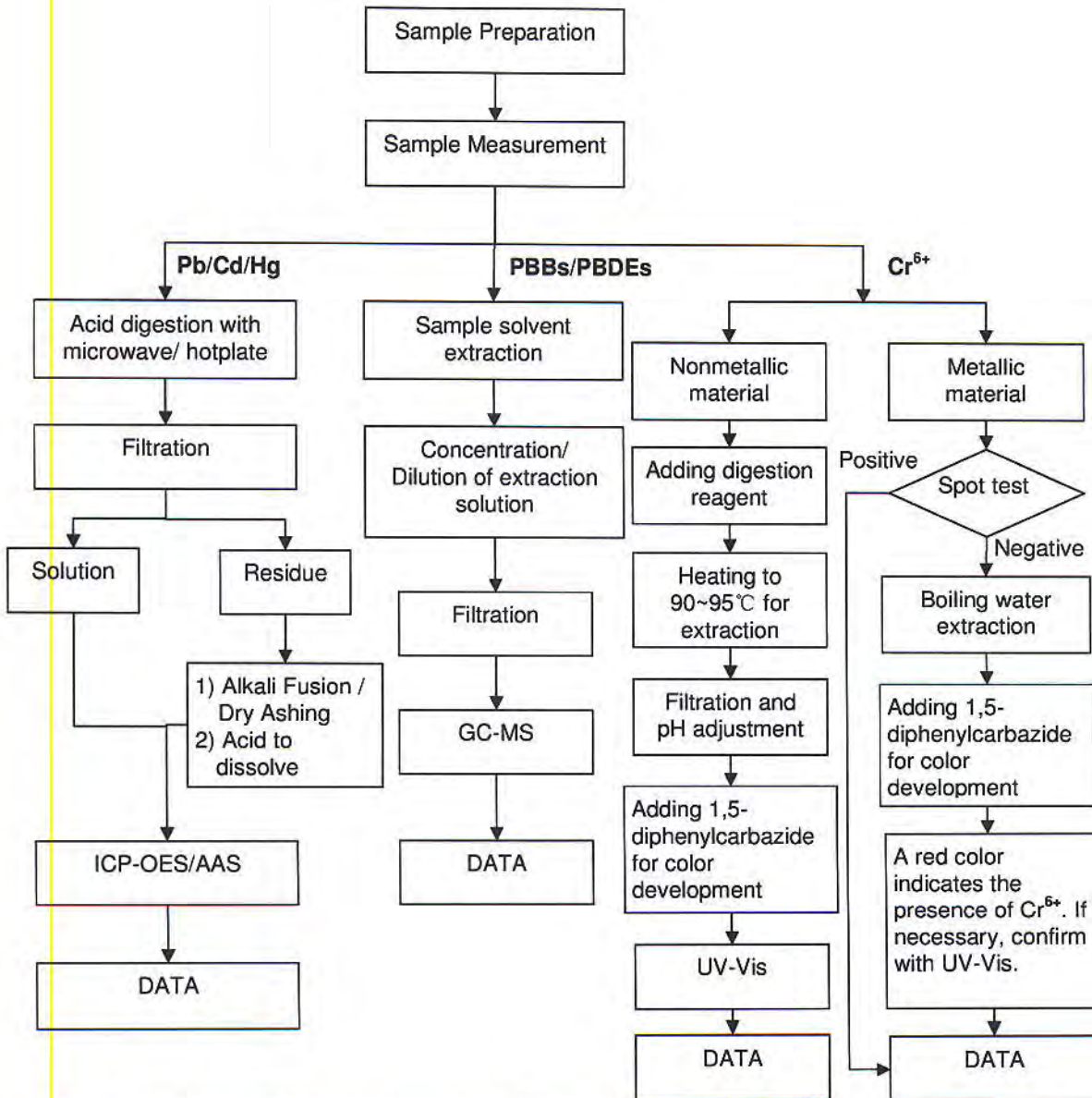
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ATTACHMENTS

**RoHS Testing Flow Chart**

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



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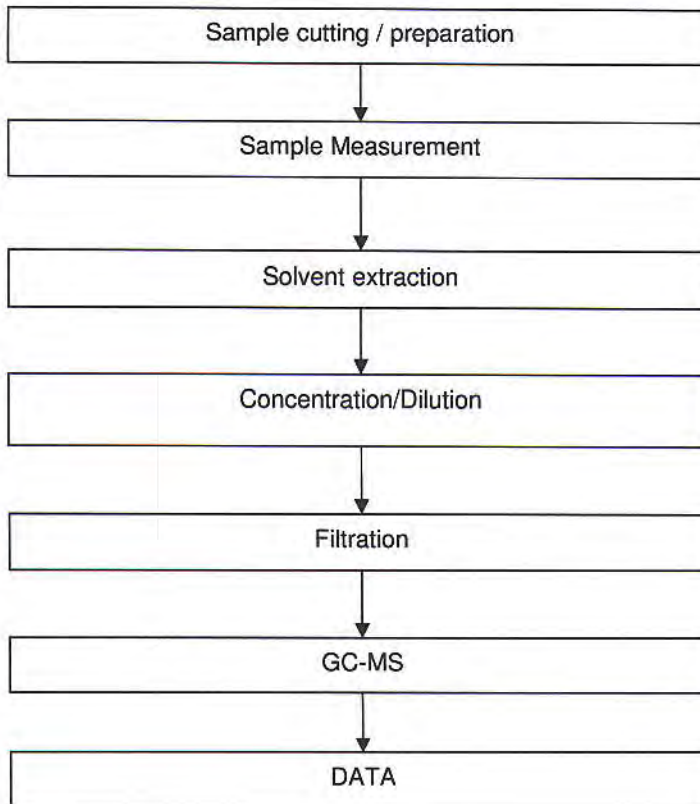




## ATTACHMENTS

### PAHs Testing Flow Chart

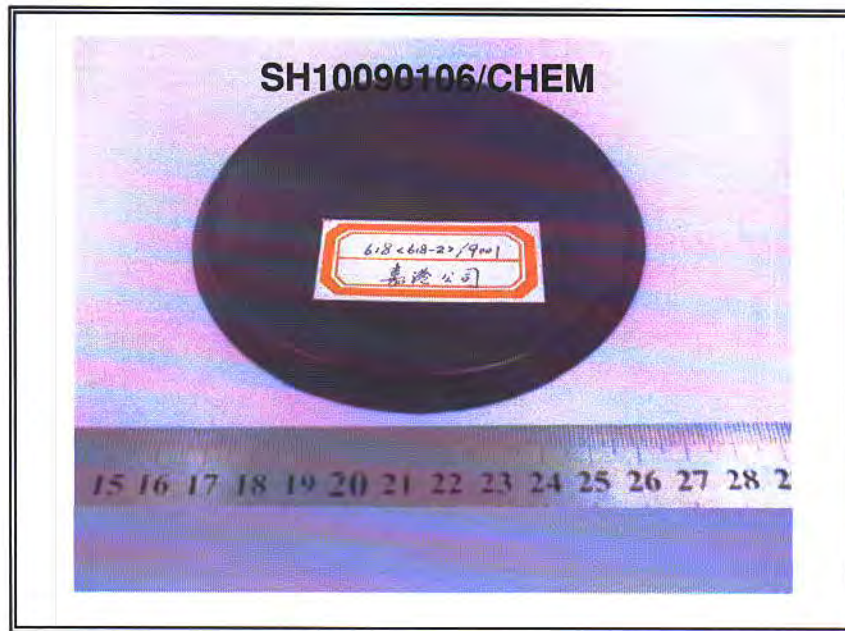
- 1) Name of the person who made testing: Cutey Yu
- 2) Name of the person in charge of testing: Ryan Yang



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Sample photo :



SGS authenticate the photo on original report only

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

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## Test Report

No.: GZ1102017520/CHEM

Date: MAR 07, 2011

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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 applicant as WIRE & CABLE

SGS Job No. : SZ12980575  
SGS Internal Reference No. : 4.1  
Tested sample information : 2468、1015  
Client Reference Information : Plastic insulation/black, brown, red, orange, yellow, green, blue, purple, gray, white. tinned or bare copper conductor.  
Model No.: See Attachment  
Date of Sample Received : FEB 25, 2011  
Testing Period : FEB 25, 2011 TO MAR 04, 2011  
Test Requested : Selected test (s) as requested by client.  
Test Method : Please refer to next page(s).  
Test Result(s) : Please refer to next page(s).  
Conclusion : Based on the performed tests on submitted sample(s), the results **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of  
SGS-CSTC Ltd.

Manson Yang  
Approved Signatory

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

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**Test Results:**

Description for specimen 1      Black plastic w/ white printing (jacket)

**RoHS Directive 2002/95/EC**

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

**Note:**

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

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Description for specimen 2      Brown plastic w/ black printing (jacket)

### RoHS Directive 2002/95/EC

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

#### Note:

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

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# Test Report

No.: GZ1102017520/CHEM

Date: MAR 07, 2011

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Description for specimen 3 Red plastic w/ black printing (jacket)

### RoHS Directive 2002/95/EC

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

#### Note:

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

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

Member of the SGS Group (SGS SA)



Description for specimen 4 Orange plastic w/ black printing (jacket)

**RoHS Directive 2002/95/EC**

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

**Note:**

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
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Description for specimen 5 Yellow plastic w/ black printing (jacket)

### RoHS Directive 2002/95/EC

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

#### Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
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Description for specimen 6 Green plastic w/ black printing (jacket)

### RoHS Directive 2002/95/EC

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

#### Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
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Description for specimen 7 Blue plastic w/ black printing (jacket)

### RoHS Directive 2002/95/EC

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

#### Note:

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

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Description for specimen 8 Purple plastic w/ white printing (jacket)

**RoHS Directive 2002/95/EC**

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

**Note:**

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
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Description for specimen 9 Grey plastic w/ black printing (jacket)

### RoHS Directive 2002/95/EC

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

#### Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
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Description for specimen 10 White plastic w/ red printing (jacket)

### RoHS Directive 2002/95/EC

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

#### Note:

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

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Description for specimen 11 Silvery metal wire

### RoHS Directive 2002/95/EC

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

#### Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. ◇ = 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 cm<sup>2</sup> sample surface area.

Storage conditions and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

5. # = Positive indicates the presence of CrVI on the tested area.  
Negative indicates the absence of CrVI on the tested area.
6. "-" = Not regulated

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**ATTACHMENT:**

- ①UL STYLE: 1007 1015 1016 1017 1028 1030 1032 1061 1095 1107 1185 1283 1347 1354 1365 1430 1429  
1431 1500 1509 1533 1571 1569 1581 1605 1617 1618 1672 1673 1674 1685 1691 1792 2096 2127 2405  
2464 2474 2476 2532 2547 2555 2576 2647 2649 2651 2689 2725 2733 2734 2791 2831 2851 2854 2876  
2877 2919 2933 2960 2961 2970 2990 20002 20080 20276 20288 3173 3265 3266 3271 3137 3272 3289 3302  
3321 3346 3347 3348 3363 3364 3385 3386 3485 3398 3485 3567 3619 SPT-1 SPT-2 SPT SJT SVT ST NISPT  
XTW CXTW;
- ②CCC STYLE:227IEC01(BV) 227IEC02(RV) 227IEC05(BV) 227IEC06(RV) 227IEC07(BV-90) 227IEC08(RV-90)  
227IEC10(BVV) 227IEC41(RTPVR) 227IEC42(BVR) 227IEC43 (SVR) 227IEC52(RVV) 227IEC53(RVV)  
227IEC71f(TVVB) 227IEC74 (RVVYP) 227IEC75 (RVVY);
- ③CQC STYLE: BV BLV BVR BVV BLVV BVVB BLVVB RVS AV AVR AVRB AVRS AVVR AV-90 AVR-90 AVP  
RVP RVVP RVVP1 RVP-90 AVP-90 QVR QFR QVR-105 QVVR;
- ④VDE STYLE: H03VVH2-F H05VV-F
- ⑤AUDIO & VIDEO CABLE

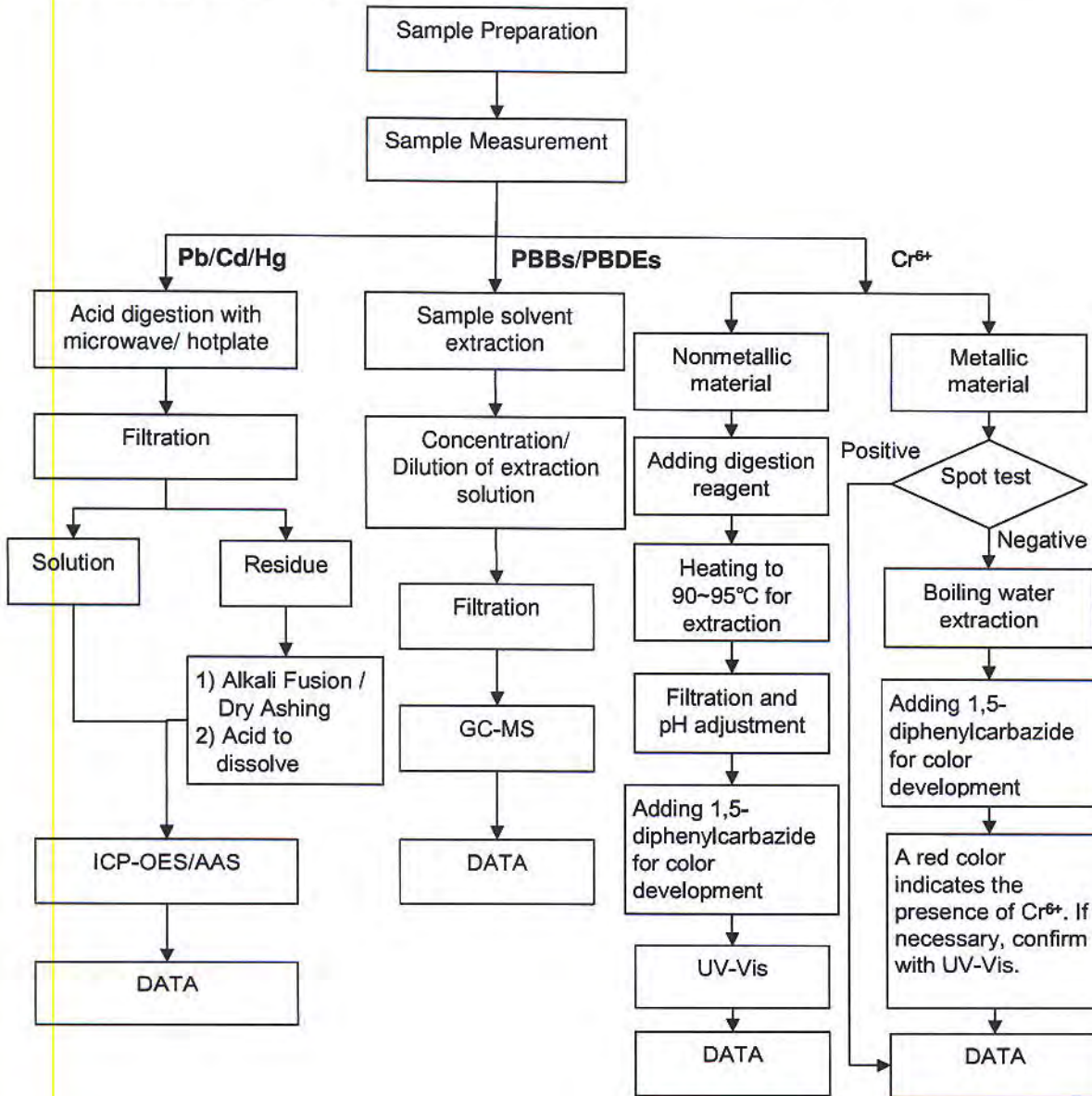
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### ATTACHMENTS

#### RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bella Wang / Cutey Yu / Ross Zhan
- 2) Name of the person in charge of testing: Adams Yu / Ryan Yang
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).

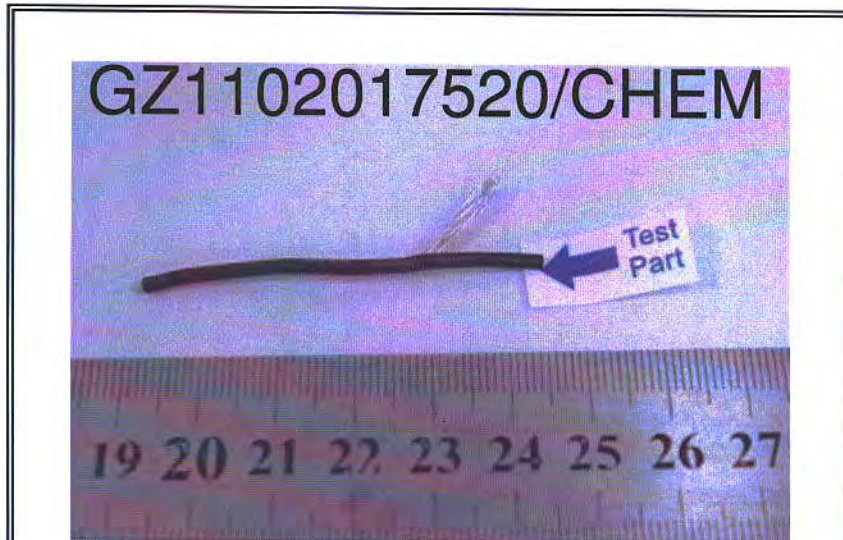


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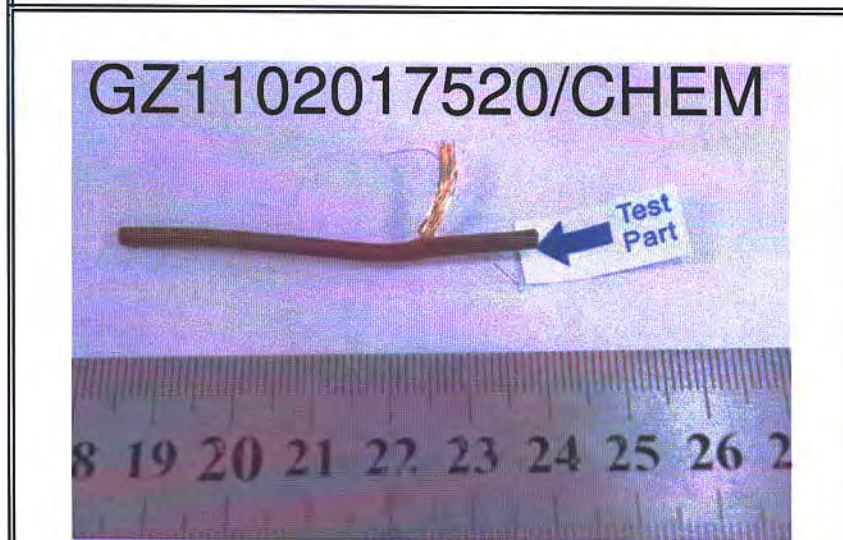




Sample photo :



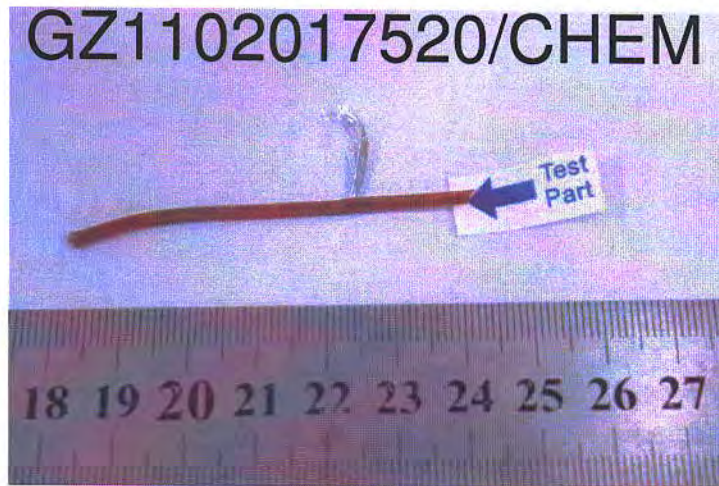
Specimen 1



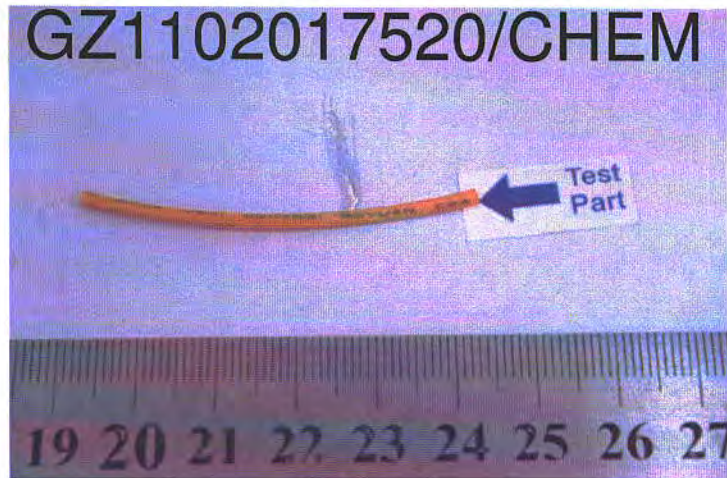
Specimen 2

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Specimen 3

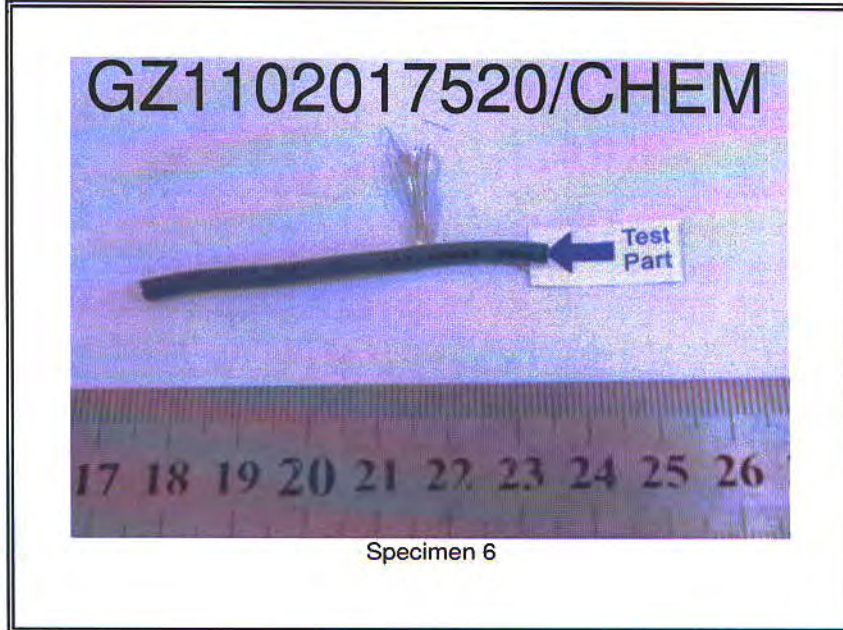
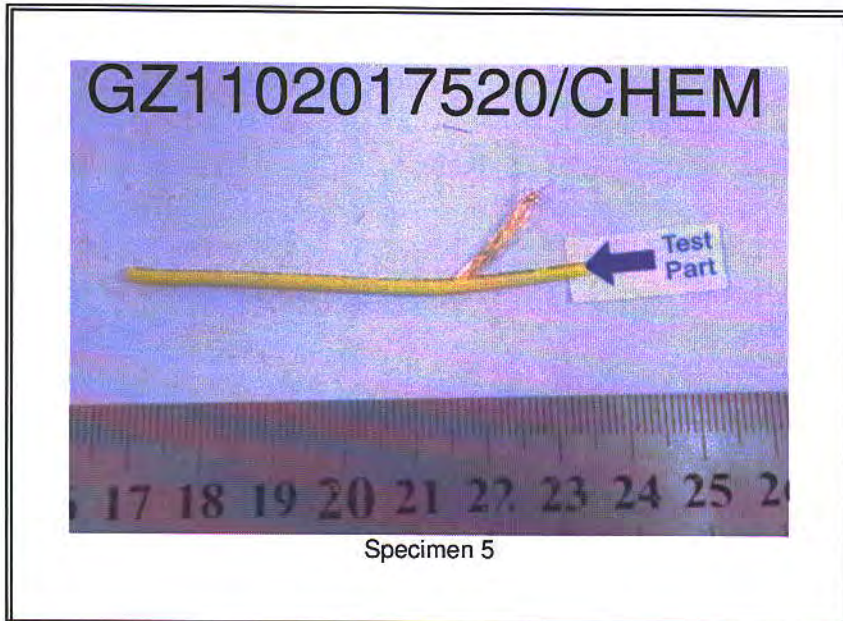


Specimen 4

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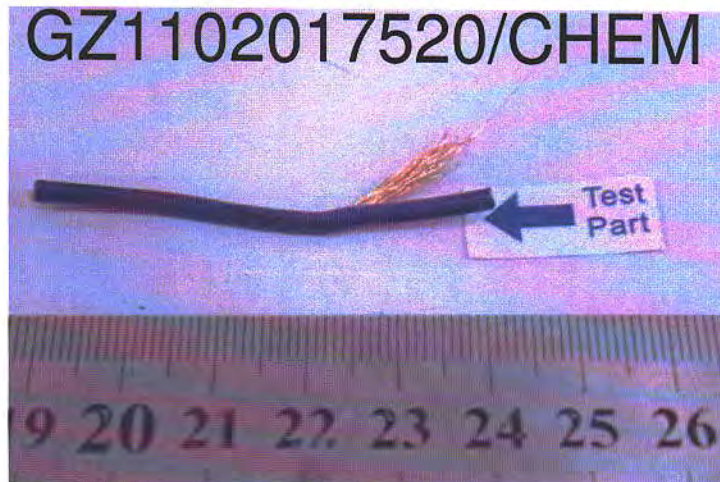




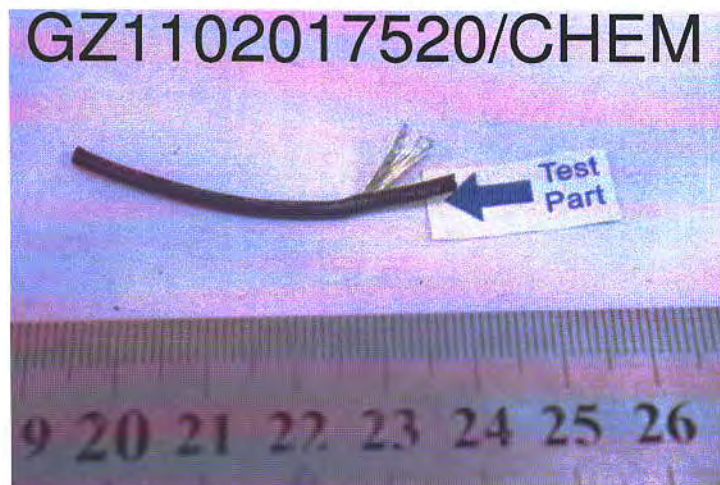


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Specimen 7

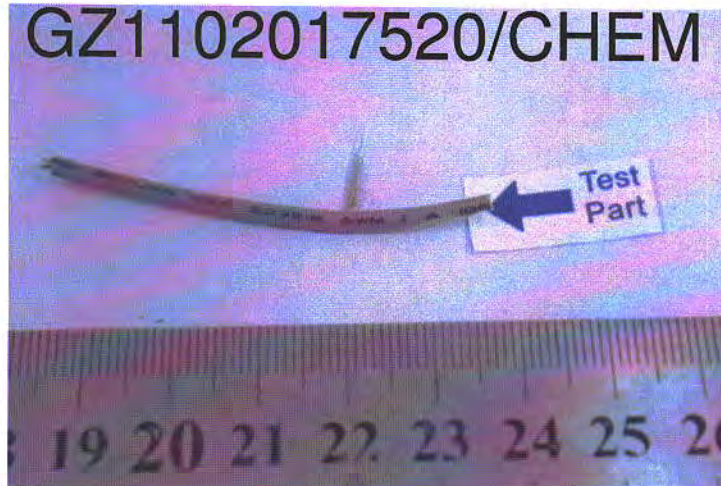


Specimen 8

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Specimen 9



Specimen 10

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Specimen 11

SGS authenticate the photo on original report only

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

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测试报告

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

乐清市精饰电镀厂  
浙江省乐清市北白象镇象塔南路42号

以下测试之样品是由申请者所提供及确认: 镀锡层

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

COPY

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Fan Jingjie, JJ范晶捷

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HL: (86-21) 61402594 HL: (86-21) 54500353 e sgs.china@sgs.com



(b) Unless a shorter period is established in the invoice, Client will promptly pay not later than 30 days from the relevant invoice date or within such other period as may be established by the Company in the invoice (the "Due Date"), all fees due to the Company falling within interest will be charged at a rate of 1.5% per month (or such other rate as may be established in the invoice). Payment in full must be made by the Due Date. Payment of any sums due to the Company shall be made in cash or by bank transfer to the account specified in the invoice. Payment by cheque or credit card is not accepted. Payment by credit card is subject to the Company's terms and conditions of use of credit cards. Payment by credit card is subject to the Company's terms and conditions of use of credit cards. Payment by credit card is subject to the Company's terms and conditions of use of credit cards.

测试报告

No. SHAEC1103841401

日期: 2011年03月31日

第2页,共4页

测试结果:

样品部件外观描述:

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

备注:

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

RoHS指令2002/95/EC

测试方法:

参照IEC 62321:2008:

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

测试项目

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

备注:

- (1) 最大允许限值引用自2002/95/EC RoHS指令和后续修正指令2005/618/EC.
- (2) ◇ 点测试法:

Negative = 镀层中未检测到六价铬, Positive = 镀层中检测到六价铬;  
(当点测试结果为Negative或无法确定时,将采用沸水萃取法作进一步的结果验证.)

◇ 沸水萃取法:

Negative = 镀层中未检测到六价铬  
Positive = 镀层中检测到六价铬; 表明50 cm<sup>2</sup>表面积的被测试样品的沸水萃取液中六价铬的浓度等于或大于0.02 mg/kg.  
针对金属表面的防腐涂层: 由于未获知样品的存储条件和生产日期,样品的六价铬测试结果仅代表测试时样品的状态.

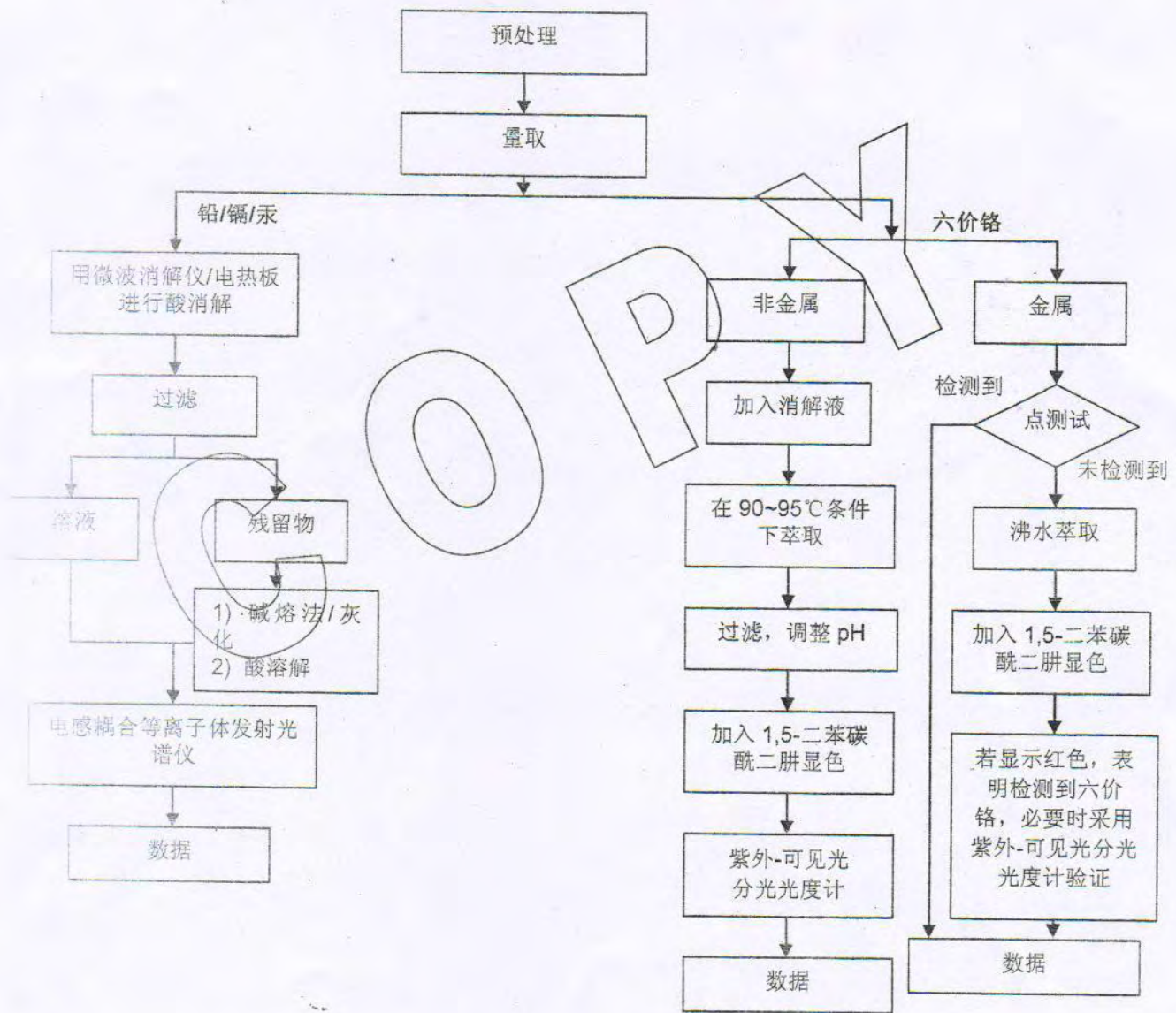
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附件

### RoHS 测试流程图

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



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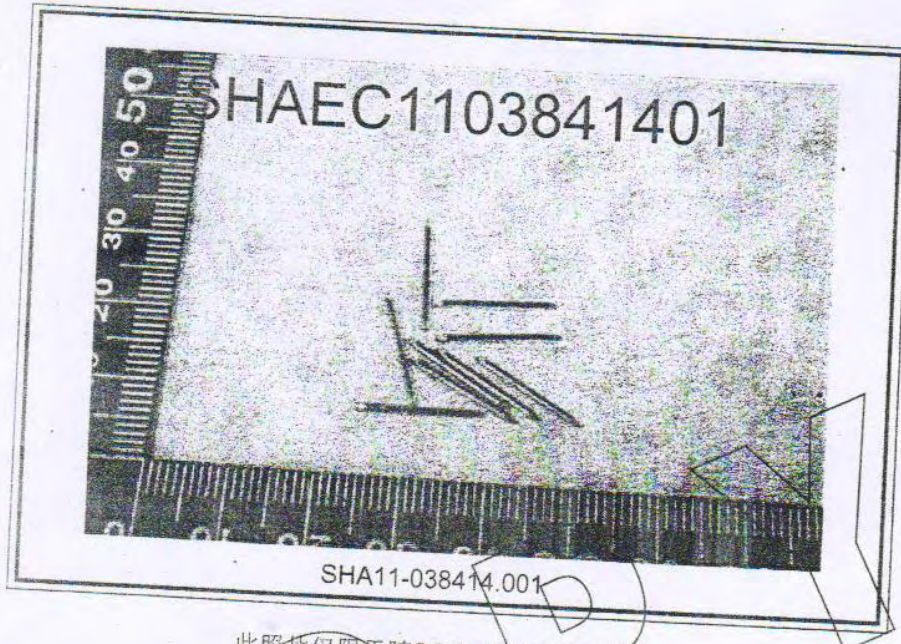
测试报告

No. SHAEC1103841401

日期: 2011年03月31日

第4页,共4页

样品照片:

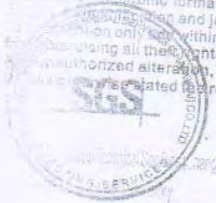


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3<sup>rd</sup> Building, No. 889 Yishan Road Xuhui District, Shanghai China 200233  
 中国·上海·徐汇区宜山路889号3号楼 邮编: 200233

TEL: (86-21) 61402553 FAX: (86-21) 64953679 www.cn.sgs.com  
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测试报告

No. SHAEC1102902201

日期: 2011年03月18日

第1页,共4页

乐清市精饰电镀厂  
浙江省乐清市北白象镇象塔南路42号

以下测试之样品是由申请者所提供及确认: 镀锌层

SGS工作编号: SP11-006643 - SH

型号: 配件

样品接收日期: 2011年03月14日

测试周期: 2011年03月14日 - 2011年03月18日

测试要求: 根据客户要求测试

测试方法: 请参见下一页

测试结果: 请参见下一页

结论: 基于所送样品进行的测试, 测试结果与欧盟RoHS指令2002/95/EC以及后续修正指令的要求相符

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Fan Jingjie, JJ范晶捷

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## 测试报告

No. SHAEC1102902201

日期: 2011年03月18日

第2页,共4页

测试结果:

### 样品部件外观描述:

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

备注:

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

### RoHS指令2002/95/EC

测试方法: 参照IEC 62321:2008:

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

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

备注:

- (1) 最大允许极限值引用自2002/95/EC RoHS指令和后续修正指令2005/618/EC.
- (2) ◇ 点测试法:

Negative = 镀层中未检测到六价铬, Positive = 镀层中检测到六价铬;  
(当点测试结果Negative或无法确定时,将采用沸水萃取法作进一步的结果验证.)

◇ 沸水萃取法:

Negative = 镀层中未检测到六价铬

Positive = 镀层中检测到六价铬; 表明50 cm<sup>2</sup>表面积的被测试样品的沸水萃取液中六价铬的浓度等于或大于0.02 mg/kg.

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

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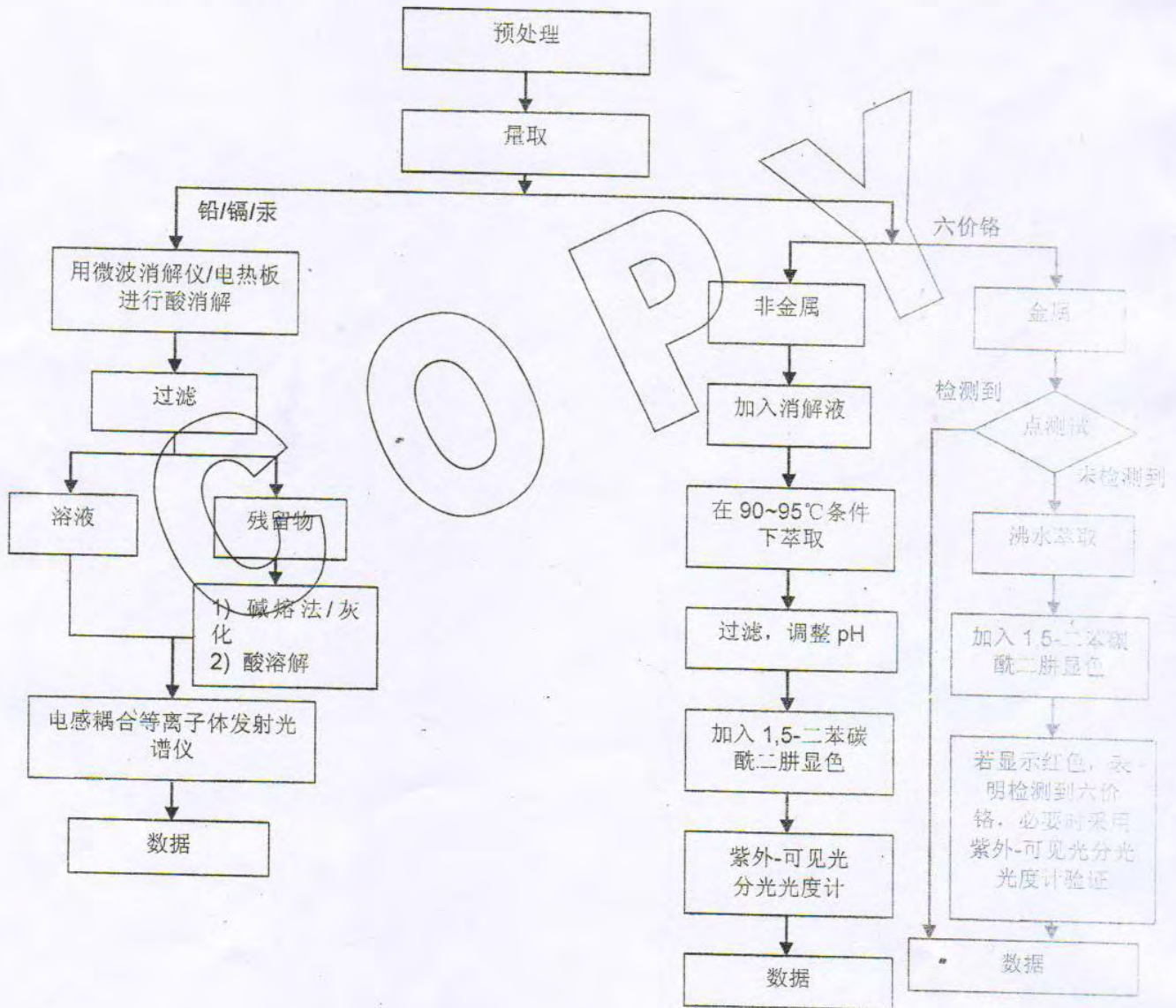




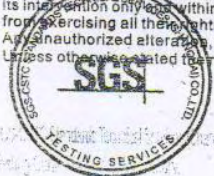
附件

## RoHS 测试流程图

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

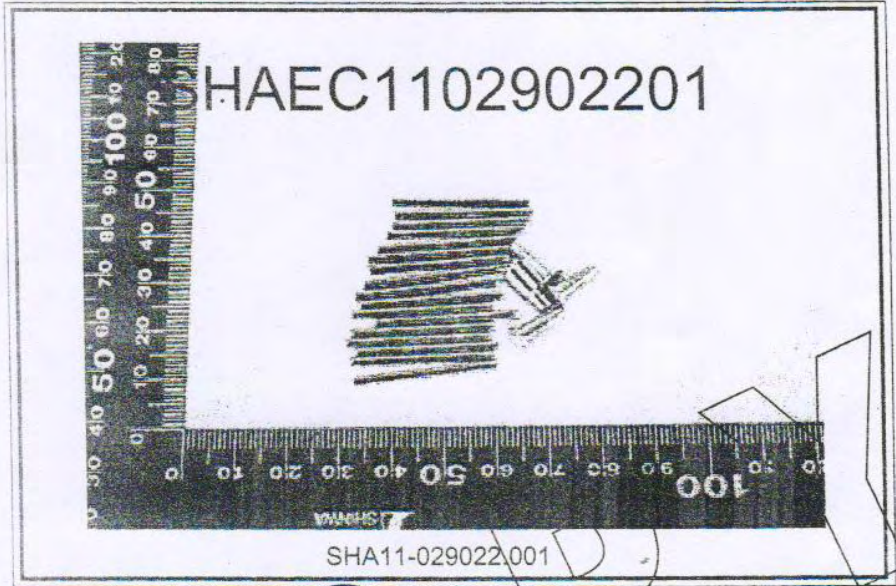


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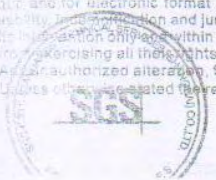
样品照片:



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