



ICP Test Report Certification Packet

Company name: Littelfuse, Inc.

Product Series: 5x20 Cartridge Fuse

Product #: 217P Series

Issue Date: January 8, 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: 
KRISTEEN BACILA

<Global EHS Engineer>

(1) Parts, sub-materials and unit parts

This document covers the 5x20 Fuse 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

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	C910541	Cap	3-6
2	C910510	Cap	3-6
3	C909543	Body – Soda Lime Glass	7-11
4	082xxx	Element - Ag Plated Wires	12-21
5	687xxx	Element – Copper Cladded Wires	22-31
6	YTW206 (692529)	Solder	32-36
7	YTW102 (692535-002)	Solder	37-41
8	3M-3779-PG (087244)	HMA (RoHS & Halogens)	42-48
9	EP608 (087335)	Glue (RoHS & Halogens)	49-60
10	030204	Overcap (Cap base & plating) Overcap (Cap wire base & plating)	61-64
11	934-077 (C030208)	Overcap (Cap base & plating) Overcap (Cap wire base & plating)	61-64
12	C030210	Overcap (Cap base & plating) Overcap (Cap wire base & plating)	61-64
13	425901	Ink - Red	65-75
14	425902	Ink - Black	76-86
15	425903	Ink - Yellow	87-97
16	425904	Ink - Blue	98-108
17	425906	Ink - Brown	109-119
18	425907	Ink - Green	120-130
19	425909	Ink - Grey	131-141
20	425913	Ink - Pale Blue	142-152

TEST REPORT

NO.: A002R121008024-1R02

Date: Oct.10, 2012

Page 1 of 4

Customer: SuZhou FuHong Electronic Industrial Co., Ltd.

Address: NO. 89 WEI DU ROAD, WANGTING TOWN, XIANGCHENG DISTRICT, SUZHOU, CHINA

Report on the submitted sample said to be
Sample name: Copper shell

Model: /

Item/Lot No.: /

Material: /

Buyer: /

Supplier: /

Manufacturer: /

Sample received date: Oct. 08, 2012

Testing period: From Oct. 08, 2012 to Oct. 10, 2012

Testing Requested

As specified by client, to determine the Lead, Cadmium, Mercury & Hexavalent Chromium content in the submitted sample in accordance with Directive 2002/95/EC (RoHS).

Testing method:

Testing Item	Pretreatment method	Measuring instrument	MQL
Lead (Pb)	IEC 62321: 2008, section 9	ICP-OES	2mg/kg
Cadmium (Cd)	IEC 62321: 2008, section 9	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321: 2008, section 7	ICP-OES	2 mg/kg
Chromium (Cr VI)	IEC 62321: 2008, Annex B	UV-VIS	0.02mg/kg*

Note:

-* 0.02 mg/kg refers to the MQL of sample extraction liquid.

Conclusion:

-When tested as specified the submitted sample complied with the requirements of commission Decision of 18 Aug 2005 amending Directive 2002/95/EC notified under document 2005/618/EC.

*****FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)*****

 Signed for and on behalf of
 Shenzhen AOV Testing Technology Co., Ltd, Kunshan Branch

 Project Leader: Maggie

 Li Tingting, Maggie
 Chemical Test Director

 Reviewed by: Weikin

 Wang Wexin, Weikin
 Technical Director

 Approved by: Mickey

 Yuan Qi, Mickey
 Lab Manager

TEST REPORT

NO.: A002R121008024-1R02

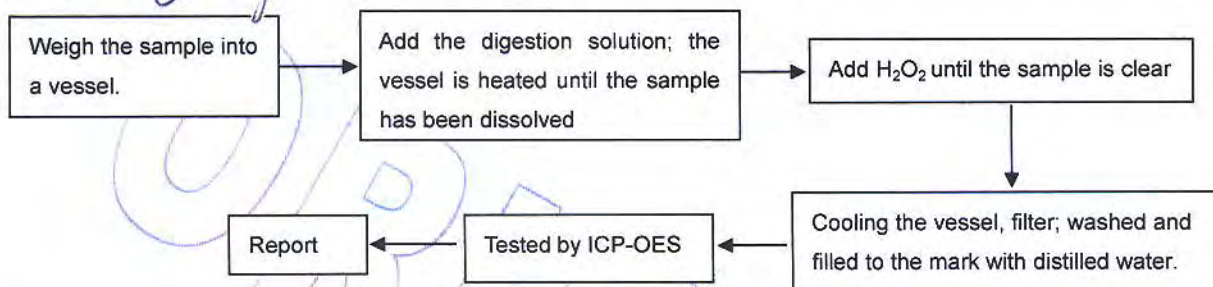
Date: Oct.10, 2012

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Test Flow:

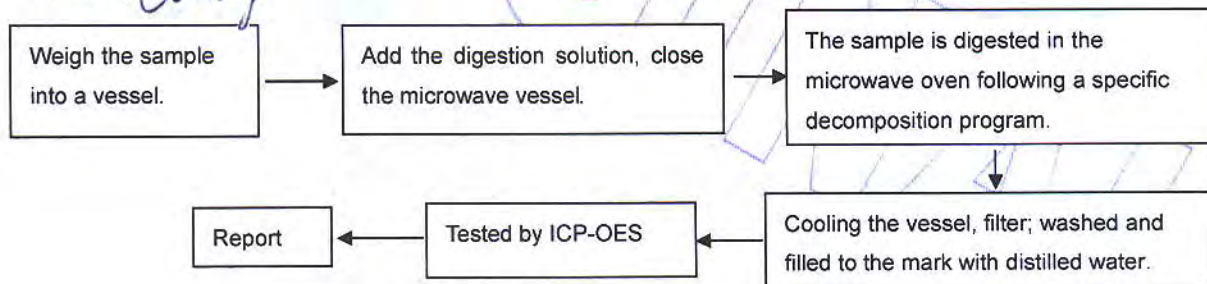
1. To Determine Lead, Cadmium Content: (Metal substrate)

Tested by: *Condy*



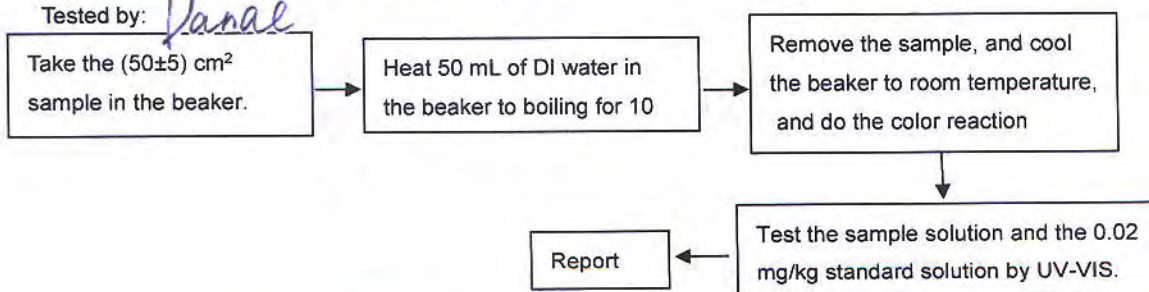
2. To Determine Mercury Content: (Metal substrate)

Tested by: *Condy*



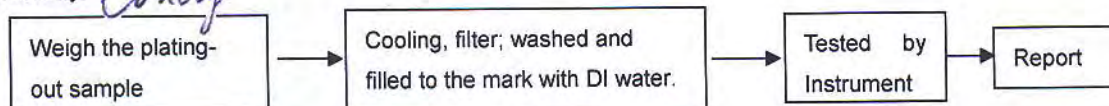
3. To Determine Hexavalent Chromium Content (boiling- water- extraction): (Metal substrate)

Tested by: *Danae*



4. To Determine Lead, Cadmium and Mercury Content: (Plating)

Tested by: *Condy*



TEST REPORT

NO.: A002R121008024-1R02

Date: Oct.10, 2012

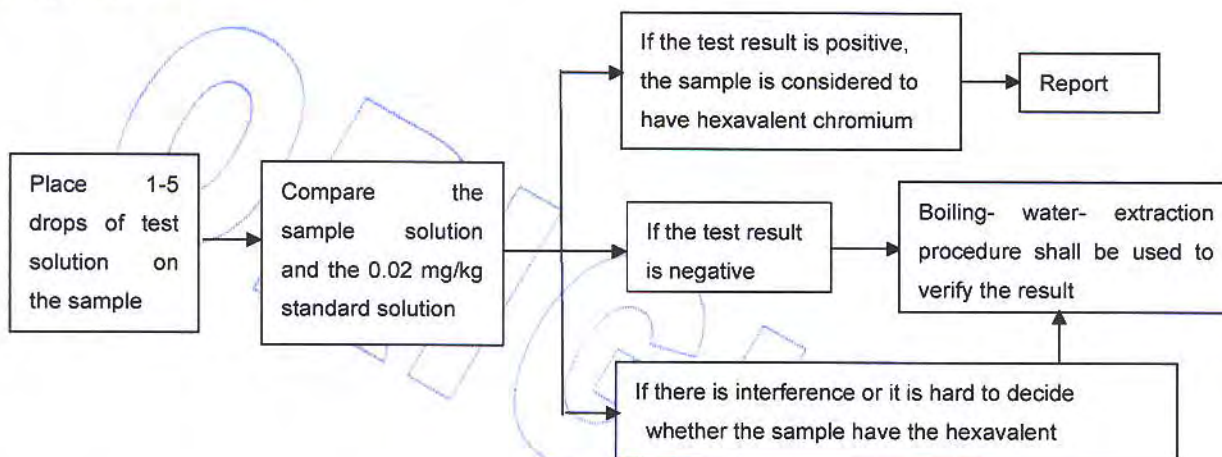
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5. To Determine Hexavalent Chromium Content in colorless and colored chromate coating on metals: (Plating)

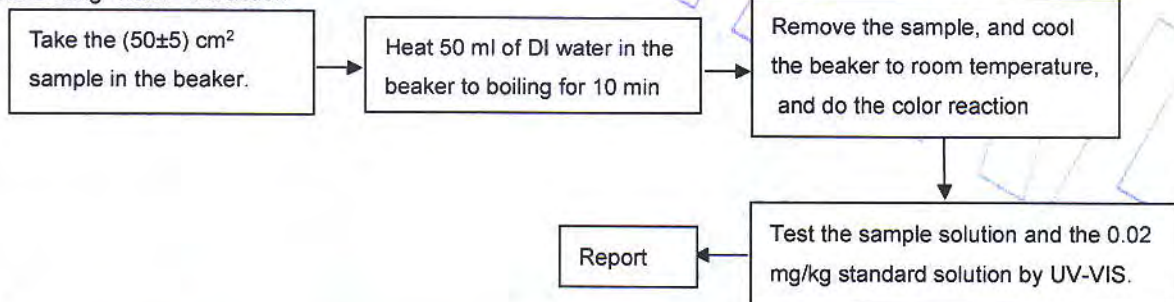
Tested by:

Danae

5.1 Spot-test



5.2 Boiling- water- extraction



Sample Description:

Code	Sample Description
1-1	Substrate
1-2	Plating

Test Results:

Item	Unit	RoHS Limit	Results	
			1-1	1-2**
Lead (Pb)	mg/kg	1000	N.D.	10
Cadmium (Cd)	mg/kg	100	N.D.	N.D.
Mercury (Hg)	mg/kg	1000	N.D.	N.D.
Chromium (CrVI)	mg/kg	1000	Negative	Negative

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Note:

-The new RoHS directive 2011/65/EU, on Jul. 21, 2011 come into force, on Jan. 03, 2013 the formal implementation, Directive 2002/95/EC shall be repealed simultaneously.

-Specimens, which requested to determine Lead, Cadmium and Mercury Content, have been dissolved completely.

-mg/kg=ppm

-N.D.=not detected(<MQL)

-MQL=Method Quantitation Limit

-Negative=Absence of Cr (VI);

-Positive=Presence of Cr (VI);

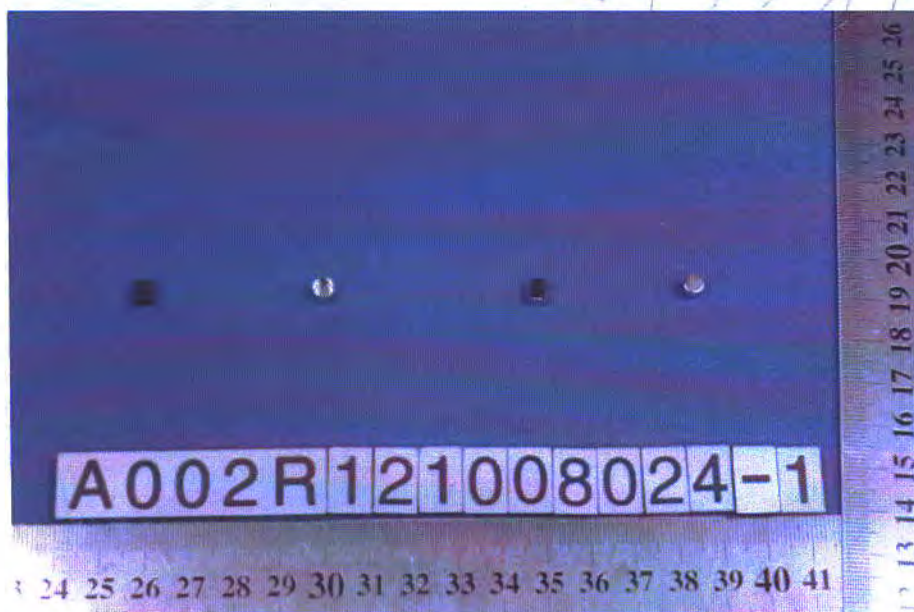
Uncertain= can not verify whether the sample have Hexavalent Chromium by spot-test.

(The tested sample should be further verified by boiling-water-extraction method if the spot test result is uncertain or negative.)

-**The test is based on the following assumption: The sample plating is a single layer and each part is uniform. The test result maybe cannot stand for the physical truth of sample plating.

-Photo is included

Photograph of Sample



Copper shell

End of Report



Test Report

No. CANEC1207912201

Date: 26 Jun 2012

Page 1 of 5

XIAMEN LICHUN ELECTRONIC ELEMENT CO.,LTD

42-2XINGLIN WEST RD.,361022,JIMEI DISTRICT,XIAMEN,,FUJIAN,P.R.C

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

SGS Job No. : XM13901119EC - XM

Date of Sample Received : 18 Jun 2012

Testing Period : 18 Jun 2012 - 26 Jun 2012

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.

Lucy Wu
Approved Signatory

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Test Report

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	CAN12-079122.001	Transparent glass tube

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)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	229
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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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

- (1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II

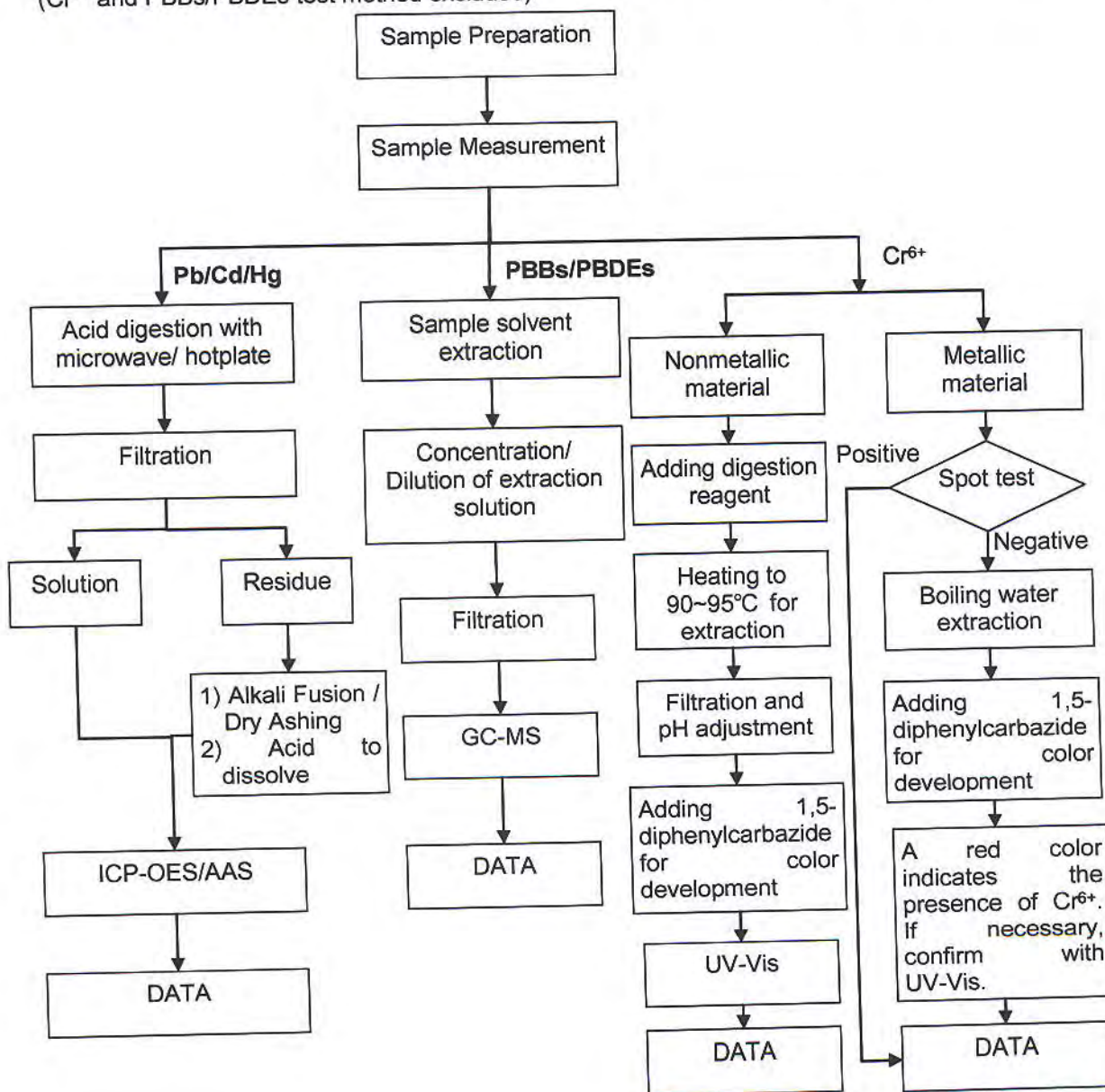
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ATTACHMENTS

RoHS Testing Flow Chart

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



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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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測試報告 Test Report

號碼(No.) : CE/2012/10835

日期(Date) : 2012/01/11

頁數(Page) : 1 of 10

ELSCHUKOM ELEKTROSCHUTZKOMPONENTENBAU GMBH
GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY

以下測試樣品係由客戶送樣，且由客戶聲稱並經客戶確認如下 (The following samples was/were submitted and identified by/on behalf of the client as) :

樣品名稱(Sample Description) : SILVER PLATED & PURE SILVER WIRES
樣品型號(Style/Item No.) : 請參考第5頁 (PLEASE REFER TO PAGE 5)
原產國(Country of Origin) : 德國 (GERMANY)
收件日期(Sample Receiving Date) : 2012/01/04
測試期間(Testing Period) : 2012/01/04 TO 2012/01/11

測試結果(Test Results) : 請見下一頁 (Please refer to next pages).


Chenyu Kung / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

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測試報告

Test Report

號碼(No.) : CE/2012/10835

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ELSCHUKOM ELEKTROSCHUTZKOMPONENTENBAU GMBH
GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



測試結果(Test Results)

測試部位(PART NAME) No.1 : 混測所有顏色金屬線 (含鍍層) (共6款) (MIXED ALL COLOR METAL WIRE
(INCLUDING THE PLATING LAYER) (6 TYPES))

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				No.1
鎘 / Cadmium (Cd)	mg/kg	參考IEC 62321: 2008方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
鉛 / Lead (Pb)	mg/kg	參考IEC 62321: 2008方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
汞 / Mercury (Hg)	mg/kg	參考IEC 62321: 2008方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
六價鉻 / Hexavalent Chromium Cr(VI)	**	參考IEC 62321: 2008方法, 以沸水萃取法檢測. / With reference to IEC 62321: 2008 and performed by Boiling water extraction Method.#	#	Negative
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛烷磺酸含量. / With reference to US EPA 3540C: 1996 method for PFOS Content. Analysis was performed by LC/MS.	10	n.d.
全氟辛酸(銨) / PFOA (CAS No.: 335-67-1)	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛酸(銨)含量. / With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.

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測試報告

Test Report

號碼(No.) : CE/2012/10835

日期(Date) : 2012/01/11

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) No.1
多溴聯苯總和 / Sum of PBBs	mg/kg	參考IEC 62321: 2008方法, 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
一溴聯苯 / Monobromobiphenyl			5	n.d.
二溴聯苯 / Dibromobiphenyl			5	n.d.
三溴聯苯 / Tribromobiphenyl			5	n.d.
四溴聯苯 / Tetrabromobiphenyl			5	n.d.
五溴聯苯 / Pentabromobiphenyl			5	n.d.
六溴聯苯 / Hexabromobiphenyl			5	n.d.
七溴聯苯 / Heptabromobiphenyl			5	n.d.
八溴聯苯 / Octabromobiphenyl			5	n.d.
九溴聯苯 / Nonabromobiphenyl			5	n.d.
十溴聯苯 / Decabromobiphenyl			5	n.d.
多溴聯苯醚總和 / Sum of PBDEs			-	n.d.
一溴聯苯醚 / Monobromodiphenyl ether			5	n.d.
二溴聯苯醚 / Dibromodiphenyl ether			5	n.d.
三溴聯苯醚 / Tribromodiphenyl ether			5	n.d.
四溴聯苯醚 / Tetrabromodiphenyl ether			5	n.d.
五溴聯苯醚 / Pentabromodiphenyl ether			5	n.d.
六溴聯苯醚 / Hexabromodiphenyl ether			5	n.d.
七溴聯苯醚 / Heptabromodiphenyl ether			5	n.d.
八溴聯苯醚 / Octabromodiphenyl ether			5	n.d.
九溴聯苯醚 / Nonabromodiphenyl ether			5	n.d.
十溴聯苯醚 / Decabromodiphenyl ether			5	n.d.
鹵素 / Halogen				
鹵素(氟) / Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析. / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素(氯) / Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)			50	n.d.
鹵素(溴) / Halogen-Bromine (Br) (CAS No.: 10097-32-2)			50	n.d.
鹵素(碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8)			50	n.d.

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ELSCHUKOM ELEKTROSCHUTZKOMPONENTENBAU GMBH
GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected (未檢出)
3. MDL = Method Detection Limit (方法偵測極限值)
4. "-" = Not Regulated (無規格值)
5. **= Qualitative analysis (No Unit) 定性分析(無單位)
6. # =
 - a. Positive means the presence of CrVI on the tested areas
(Positive表示測試區域偵測到六價鉻)
 - b. Negative means the absence of CrVI on the tested areas
(Negative表示測試區域未偵測到六價鉻)

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² tested areas. / 該溶液濃度 \geq 0.02 mg/kg with 50 cm² (tested areas)

7. 樣品的測試是基於申請人要求混合測試，報告中的混合測試結果不代表其中個別單一材質的含量。
(The samples was/were analyzed on behalf of the applicant as mixing sample in one testing. The above results was/were only given as the informality value.)

PFOS參考資訊(Reference Information) : 指令 2006/122/EC (Directive 2006/122/EC)

- (1) 該物質不可置於市場上或使用於特殊物質或配置成分重量濃度等於或大於0.005%。
(May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0.005 % by mass.)
- (2) 該物質不可置於市場上的半成品或商品或其物件；假若零件上明顯地具有PFOS並參照結構上及微細構造上計算PFOS重量濃度等於或大於0.1%，而紡織品或其他覆蓋物質，如果PFOS在覆蓋物質中含量等於或大於1 μ g/m²。
(May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0.1 % by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than 1 μ g/m² of the coated material.)

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樣品型號(Style/Item No.)

:

- (B-1) 101. 014 - - - - - silver plated copper wire—Cu, Ag - - %
- (B-2) 101. 0131. - - - - - pure silver wire—Ag 1000
- (B-3) 101.0123.0 - - - - - silver plated purest nickel wire—Ni99.98%, Ag1%
- (B-4) 101.0182.0 - - - - - silver-copper alloy plated copper clad wire—Elcon D, AgCu5%
- (B-5) 101.0120.0 - - - - - silver plated constantan wire—CuNi44, Ag5%
- (B-6) 101.0151.0 - - - - - copper - nickel 44 alloy silver plated wire—CuNi44, Ag10%

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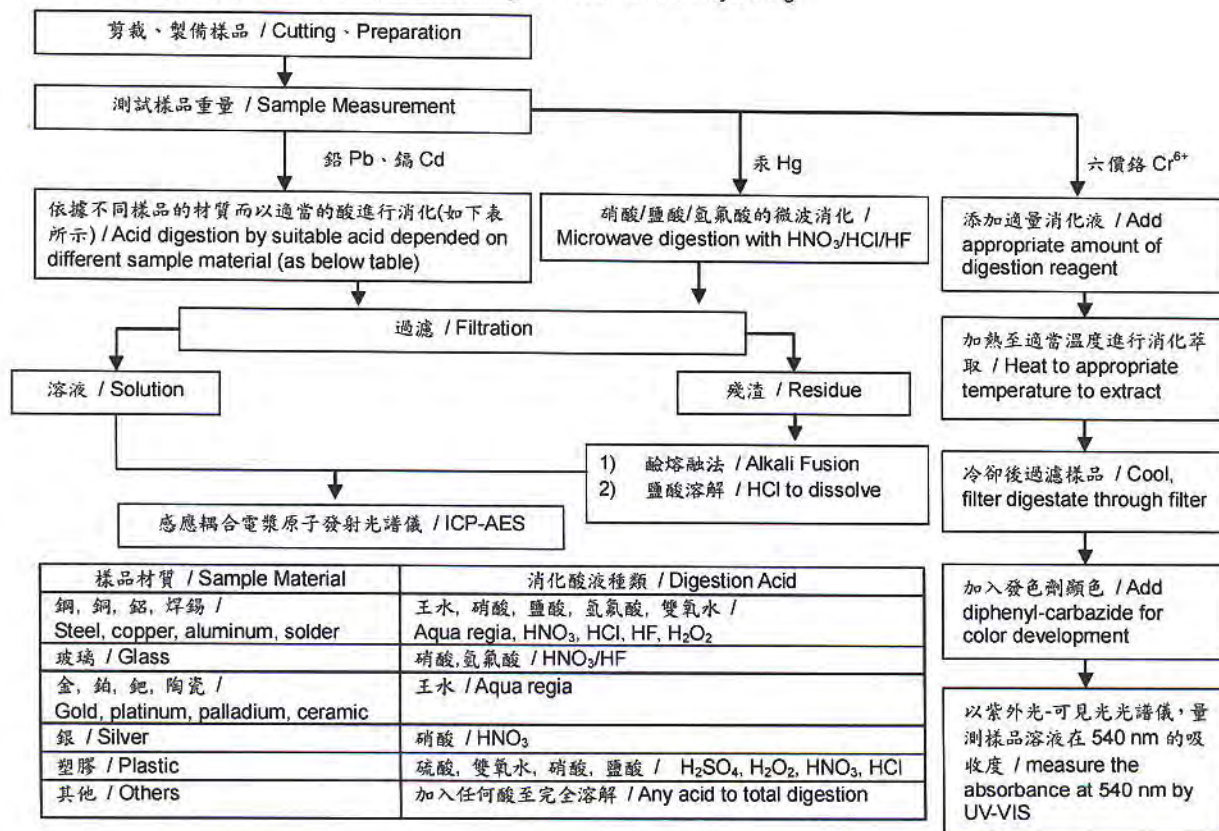
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)
- 2) 測試人員：楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 3) 測試負責人：張啓典 / Name of the person in charge of measurement: Troy Chang



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GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



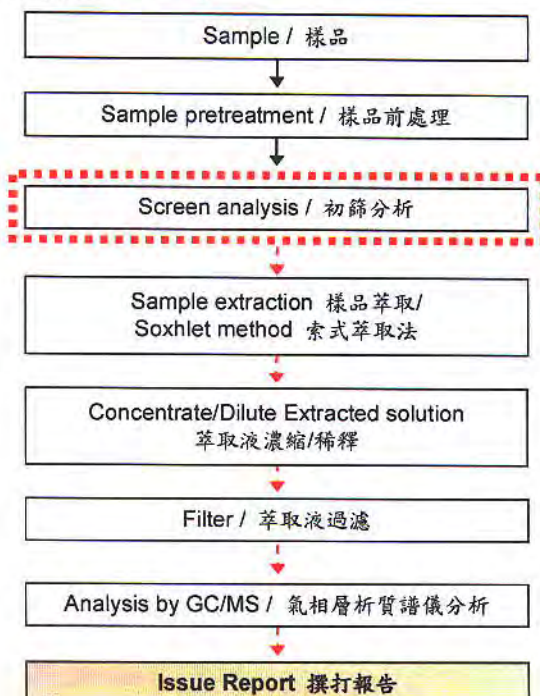
多溴聯苯/多溴聯苯醚分析流程圖 / PBB/PBDE analytical FLOW CHART

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

初次測試程序 / First testing process —————>

選擇性篩檢程序 / Optional screen process>

確認程序 / Confirmation process - - - ->



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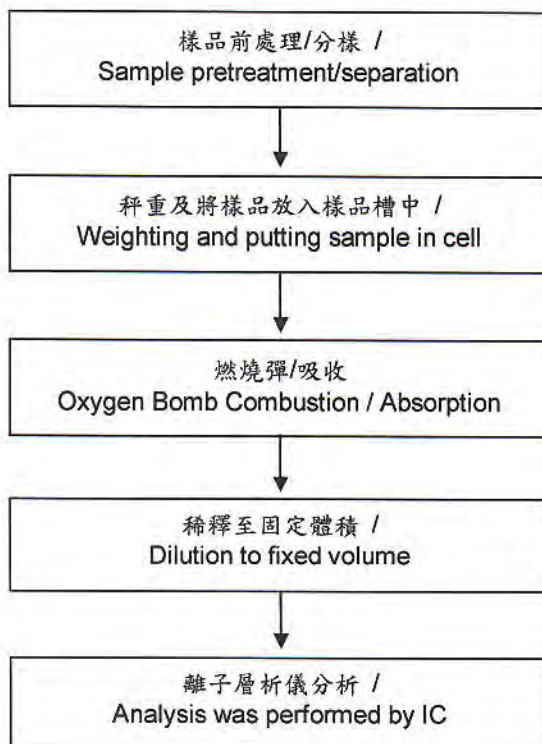
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GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



鹵素分析流程圖 / Analytical flow chart of halogen content

- 測試人員：陳恩臻 / Name of the person who made measurement: Rita Chen
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



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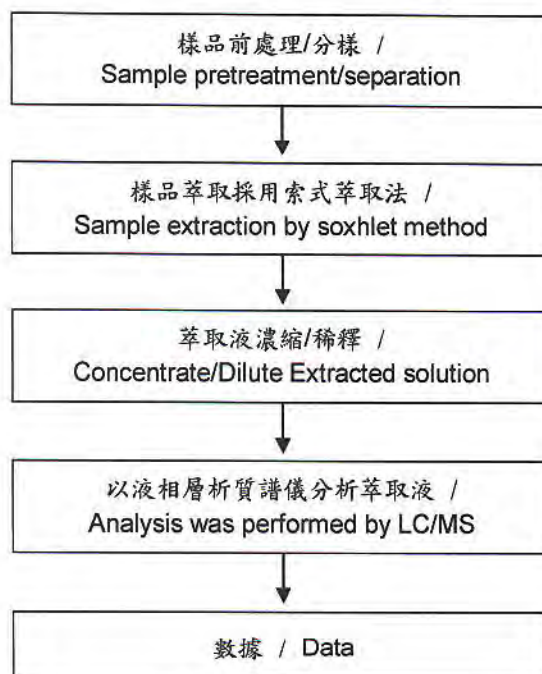
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索式萃取分析流程圖 / Analytical flow chart of Soxhlet extraction (LC/MS) procedure

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

【測試項目：全氟辛烷磺酸/全氟辛酸(銨)、苯並三唑類化合物 /
Test Items: PFOS/PFOA、Benzotriazole】



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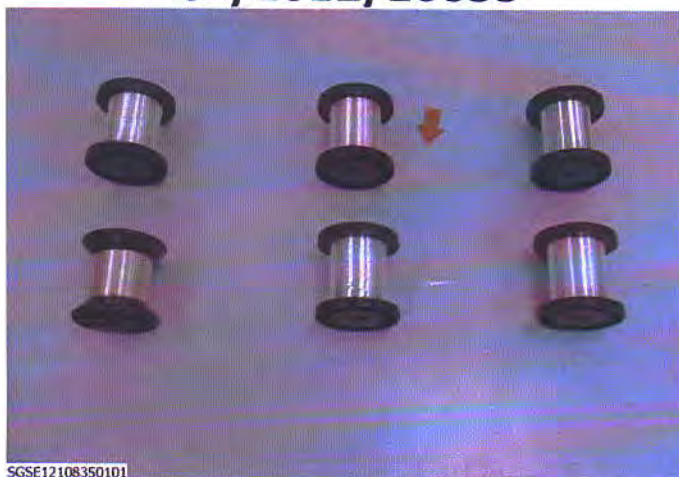
* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。*
(The tested sample / part is marked by an arrow if it's shown on the photo.)

CE/2012/10835



SGSE12108350001

CE/2012/10835



SGSE12108350101

**** 報告結尾(End of Report) ****

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測試報告 Test Report

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以下測試樣品係由客戶送樣，且由客戶聲稱並經客戶確認如下 (The following samples was/were submitted and identified by/on behalf of the client as):

樣品名稱(Sample Description) : COPPER CLAD & COPPER ALLOY WIRES
樣品型號(Style/Item No.) : 請參考第5頁 (PLEASE REFER TO PAGE 5)
原產國(Country of Origin) : 德國 (GERMANY)
收件日期(Sample Receiving Date) : 2012/01/04
測試期間(Testing Period) : 2012/01/04 TO 2012/01/11

測試結果(Test Results) : 請見下一頁 (Please refer to next pages).


Chenyu Kung / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

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測試報告

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ELSCHUKOM ELEKTROSCHUTZKOMponentenbau GmbH

GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



測試結果(Test Results)

測試部位(PART NAME) No.1 : 混測所有顏色金屬線 (含鍍層) (共16款) (MIXED ALL COLOR METAL WIRE
(INCLUDING THE PLATING LAYER) (16 TYPES))

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				No.1
鎘 / Cadmium (Cd)	mg/kg	參考IEC 62321: 2008方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
鉛 / Lead (Pb)	mg/kg	參考IEC 62321: 2008方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
汞 / Mercury (Hg)	mg/kg	參考IEC 62321: 2008方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
六價鉻 / Hexavalent Chromium Cr(VI)	**	參考IEC 62321: 2008方法, 以沸水萃取法檢測. / With reference to IEC 62321: 2008 and performed by Boiling water extraction Method.#	#	Negative
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛烷磺酸含量. / With reference to US EPA 3540C: 1996 method for PFOS Content. Analysis was performed by LC/MS.	10	n.d.
全氟辛酸(銨) / PFOA (CAS No.: 335-67-1)	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛酸(銨)含量. / With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.

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Chemical-Taipei 33 WuChyuan Road, Wuku Industrial Zone, New Taipei City, Taiwan / 新北市五股區五股路33號 電話: +886 (02)2299 3279 f +886 (02)2299 3237 www.sgs.com

測試報告 Test Report

號碼(No.) : CE/2012/10836

日期(Date) : 2012/01/11

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ELSCHUKOM ELEKTROSCHUTZKOMONENTENBAU GMBH
GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) No.1
多溴聯苯總和 / Sum of PBBs	mg/kg	參考 IEC 62321: 2008 方法, 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
一溴聯苯 / Monobromobiphenyl			5	n.d.
二溴聯苯 / Dibromobiphenyl			5	n.d.
三溴聯苯 / Tribromobiphenyl			5	n.d.
四溴聯苯 / Tetrabromobiphenyl			5	n.d.
五溴聯苯 / Pentabromobiphenyl			5	n.d.
六溴聯苯 / Hexabromobiphenyl			5	n.d.
七溴聯苯 / Heptabromobiphenyl			5	n.d.
八溴聯苯 / Octabromobiphenyl			5	n.d.
九溴聯苯 / Nonabromobiphenyl			5	n.d.
十溴聯苯 / Decabromobiphenyl			5	n.d.
多溴聯苯醚總和 / Sum of PBDEs			-	n.d.
一溴聯苯醚 / Monobromodiphenyl ether			5	n.d.
二溴聯苯醚 / Dibromodiphenyl ether			5	n.d.
三溴聯苯醚 / Tribromodiphenyl ether			5	n.d.
四溴聯苯醚 / Tetrabromodiphenyl ether			5	n.d.
五溴聯苯醚 / Pentabromodiphenyl ether			5	n.d.
六溴聯苯醚 / Hexabromodiphenyl ether			5	n.d.
七溴聯苯醚 / Heptabromodiphenyl ether			5	n.d.
八溴聯苯醚 / Octabromodiphenyl ether			5	n.d.
九溴聯苯醚 / Nonabromodiphenyl ether			5	n.d.
十溴聯苯醚 / Decabromodiphenyl ether			5	n.d.
鹵素 / Halogen	mg/kg	參考 BS EN 14582:2007, 以離子層析儀分析. / With reference to BS EN 14582:2007. Analysis was performed by IC.		
鹵素 (氟) / Halogen-Fluorine (F) (CAS No.: 14762-94-8)			50	n.d.
鹵素 (氯) / Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)			50	n.d.
鹵素 (溴) / Halogen-Bromine (Br) (CAS No.: 10097-32-2)			50	n.d.
鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8)			50	n.d.

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ELSCHUKOM ELEKTROSCHUTZKOMPONENTENBAU GMBH
GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



備註(Note) :

1. mg/kg = ppm; 0.1wt% = 1000ppm
2. n.d. = Not Detected (未檢出)
3. MDL = Method Detection Limit (方法偵測極限值)
4. "-" = Not Regulated (無規格值)
5. ** = Qualitative analysis (No Unit) 定性分析(無單位)
6. # = a. Positive means the presence of CrVI on the tested areas
(Positive表示測試區域偵測到六價鉻)
b. Negative means the absence of CrVI on the tested areas
(Negative表示測試區域未偵測到六價鉻)

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² tested areas. / 該溶液濃度 \geq 0.02 mg/kg with 50 cm² (tested areas)

7. 樣品的測試是基於申請人要求混合測試，報告中的混合測試結果不代表其中個別單一材質的含量。
(The samples was/were analyzed on behalf of the applicant as mixing sample in one testing. The above results was/were only given as the informality value.)

PFOS參考資訊(Reference Information) : 指令 2006/122/EC (Directive 2006/122/EC)

- (1) 該物質不可置於市場上或使用於特殊物質或配置成分重量濃度等於或大於0.005%。
(May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0.005 % by mass.)
- (2) 該物質不可置於市場上的半成品或商品或其物件；假若零件上明顯地具有PFOS並參照結構上及微細構造上計算PFOS重量濃度等於或大於0.1%，而紡織品或其他覆蓋物質，如果PFOS在覆蓋物質中含量等於或大於1 μ g/m²。
(May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0.1 % by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than 1 μ g/m² of the coated material.)

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GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



樣品型號(Style/Item No.)

:

- (C-1) 101. 0177. 0 - - - - copper tin alloy wire CuSn6
- (C-2) 101. 0183. 0 - - - - copper clad wire — Elcon 30
- (C-3) 101. 0172. 0 - - - - copper clad steel wire — Elcon F
- (C-4) 101. 0181. 0 - - - - copper clad iron-nickel-alloy wire — Elcon D
- (C-5) 101.0132. - - - - silver copper alloy wire — AgCu50
- (C-6) 101.0134. 0 - - - - silver copper alloy wire — AgCu90
- (C-7) 101.0171. 0 - - - - copper wire — Cu99.9%
- (C-8) 101.0135. - - - - silver copper alloy wire — Ag72Cu28
- (C-9) 101.0157. 0 - - - - copper-zinc-alloy wire — Cu80 Zn20
- (C-10) 101.0136. - - - - silver copper alloy wire — Ag45Cu55 (AgCu55)
- (C-11) 101- - 064. - - - - copper plated, brass plated spring-steel wire — FST, Cu--%
- (C-12) 101.0166. - - - - silver copper alloy wire — AgCu70 (ElCu70)
- (C-13) 101.0138. - - - - silver copper alloy wire — AgCu80 (ElCu80)
- (C-14) 101.0161. - - - - oxygenfree copper wire — OF-Cu
- (C-15) 101.0155. 0 - - - - copper-zinc-alloy wire — Cu70 Zn30 (Ms 70)
- (C-16) 101.0128. 0 - - - - tungsten purity wire — W

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測試報告 Test Report

ELSCHUKOM ELEKTROSCHUTZKOMPONENTENBAU GMBH
GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY

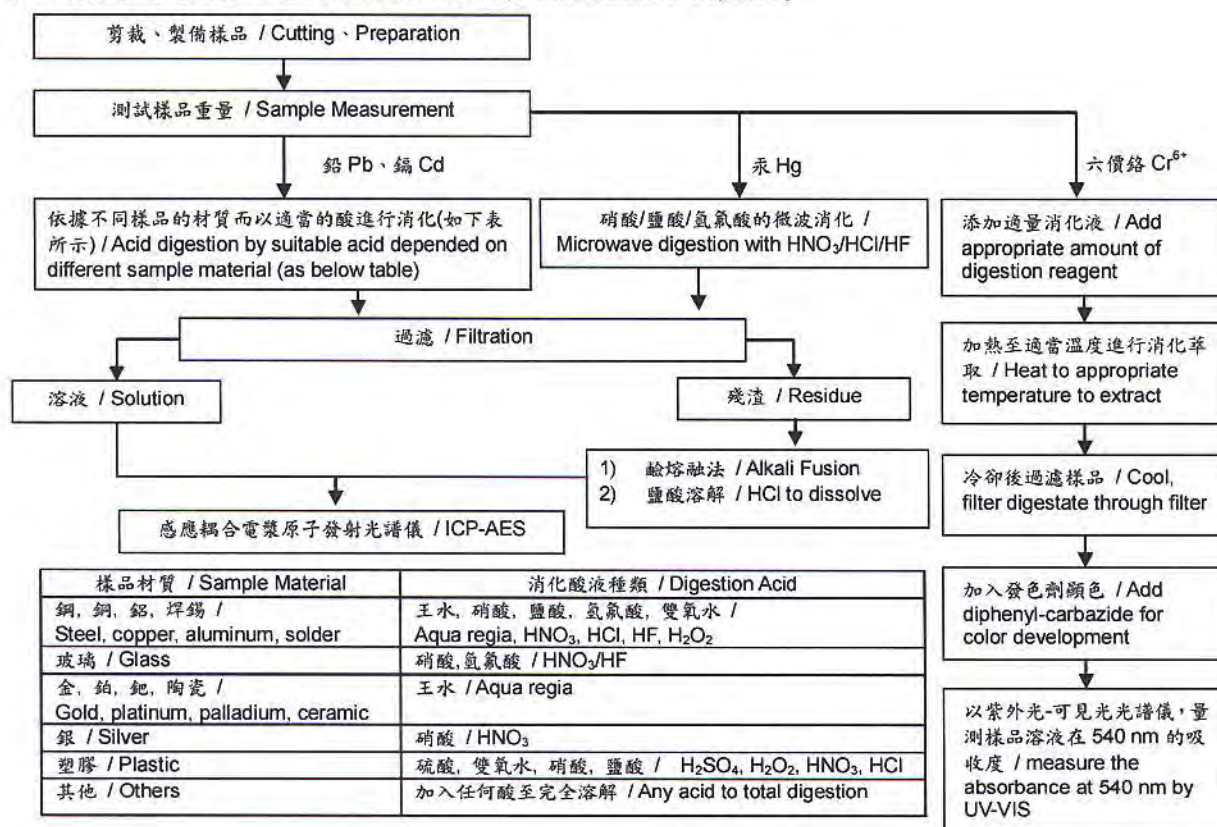
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)
- 2) 測試人員: 楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 3) 測試負責人: 張啓興 / Name of the person in charge of measurement: Troy Chang



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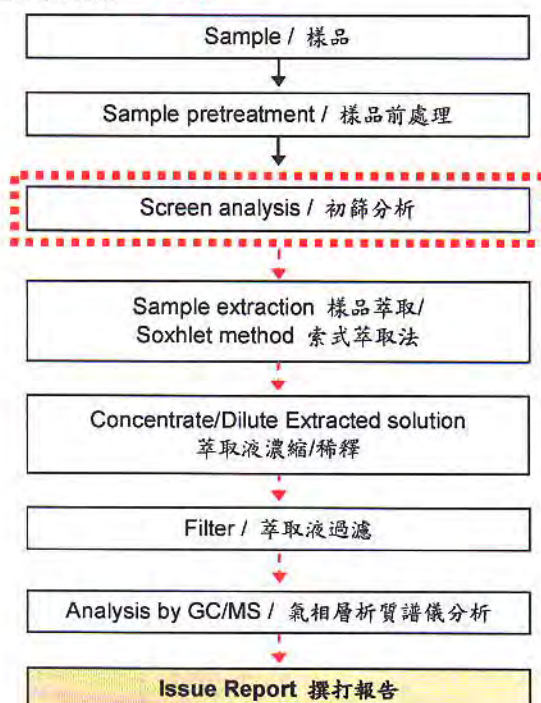
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GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



多溴聯苯/多溴聯苯醚分析流程圖 / PBB/PBDE analytical FLOW CHART

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang
- 初次測試程序 / First testing process —————→
- 選擇性篩檢程序 / Optional screen process→
- 確認程序 / Confirmation process - - - - -→



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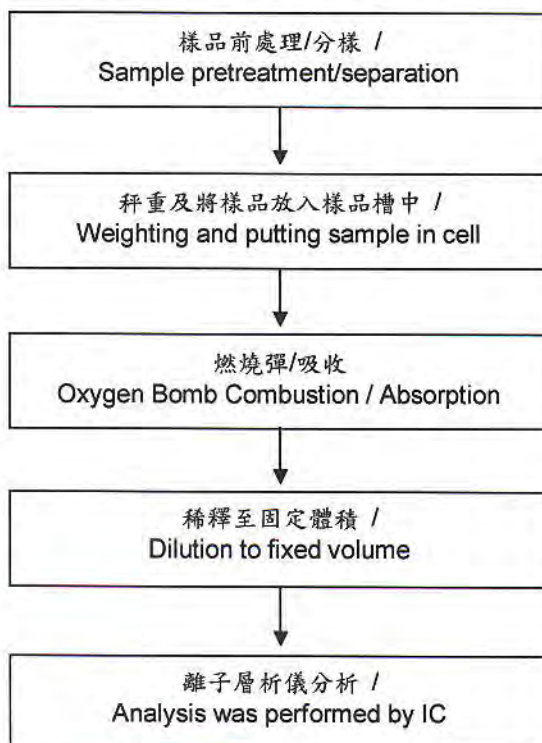
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ELSCHUKOM ELEKTROSCHUTZKOMPONENTENBAU GMBH
GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



鹵素分析流程圖 / Analytical flow chart of halogen content

- 測試人員：陳思臻 / Name of the person who made measurement: Rita Chen
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



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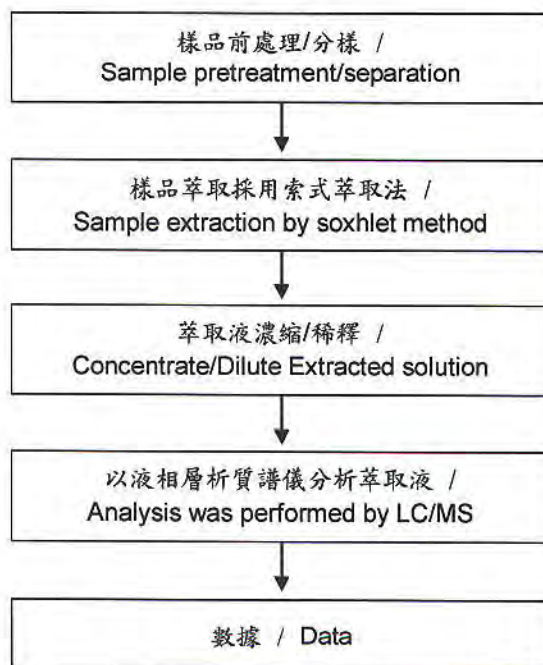
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索式萃取分析流程圖 / Analytical flow chart of Soxhlet extraction (LC/MS) procedure

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

【測試項目：全氟辛烷磺酸/全氟辛酸(銨)、苯並三唑類化合物 /
Test Items: PFOS/PFOA、Benzotriazole】



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* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。*
(The tested sample / part is marked by an arrow if it's shown on the photo.)

CE/2012/10836



CE/2012/10836



**** 報告結尾(End of Report) ****

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Test Report

No. SHAEC1216714738

Date: 25 Sep 2012

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

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

SGS Job No. : SP12-028285 - SH
Part No. (P/N) : YTW206
Composition : Sn0.3Ag0.7CuCe
Date of Sample Received : 21 Sep 2012
Testing Period : 21 Sep 2012 - 25 Sep 2012
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.



Fan Jingjie, JJ
Approved Signatory

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Test Report

No. SHAEC1216714738

Date: 25 Sep 2012

Page 2 of 5

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-167147.035	Silvery wire

Remarks :

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

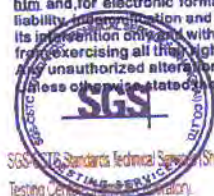
RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

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

Test Item(s)	Limit	Unit	MDL	035
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	50
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	◇	Negative
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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SGS (Shanghai) Standards Technical Services (Shanghai) Co., Ltd.
Testing Center

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Test Report

No. SHAEC1216714738

Date: 25 Sep 2012

Page 3 of 5

Test Item(s)	Limit	Unit	MDL	035
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

(1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II

(2) ◇Spot-test:

Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)

◇Boiling-water-extraction:

Negative = Absence of Cr(VI) coating

Positive = Presence of Cr(VI) coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

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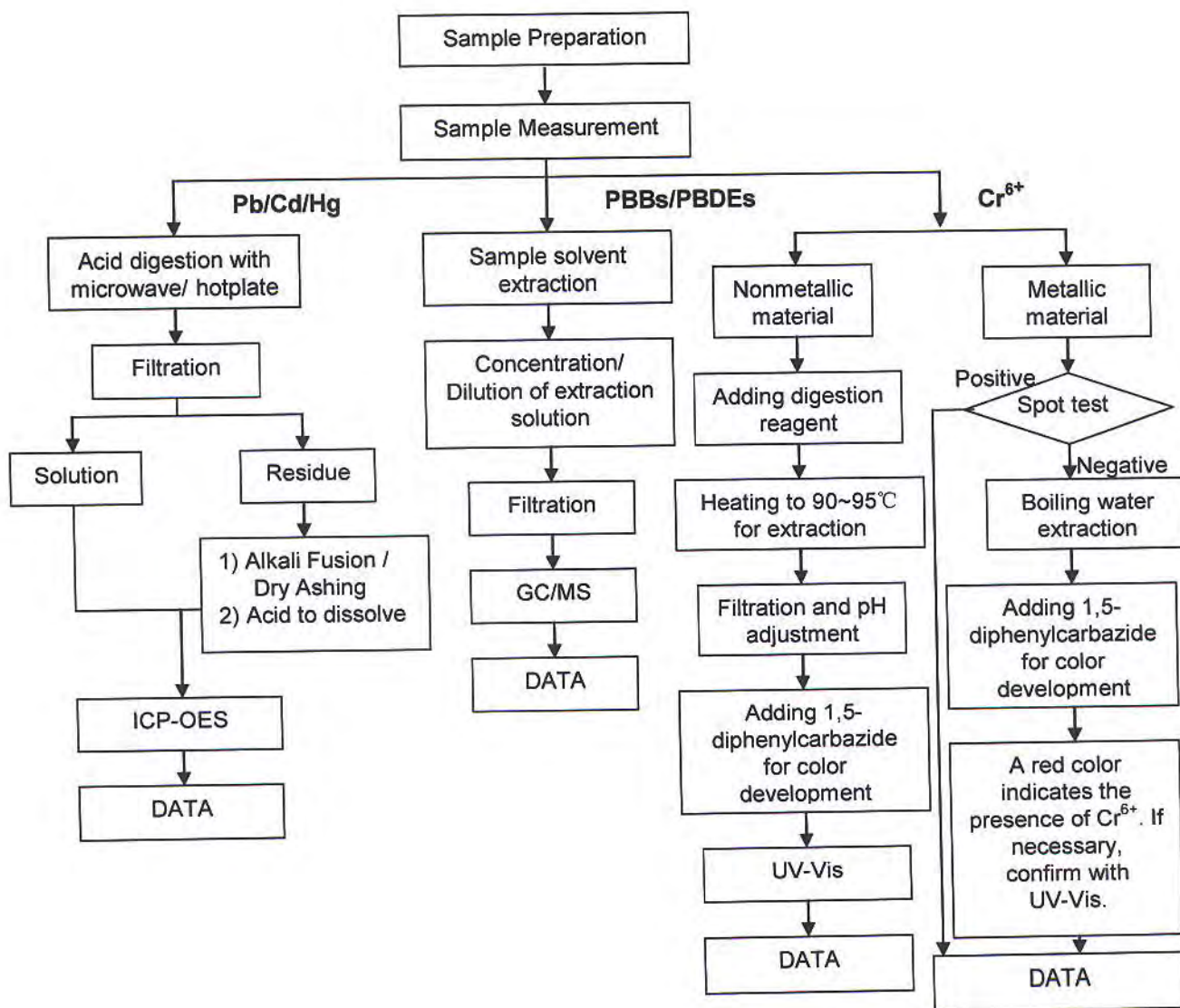
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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Jan Shi/Yoyo Wang/Allen Xiao/Gary Xu
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/ Linda Li
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded)



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No. SHAEC1216714738

Date: 25 Sep 2012

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Sample photo:



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Test Report

No. SHAEC1216714749

Date: 25 Sep 2012

Page 1 of 5

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

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

SGS Job No. : SP12-028285 - SH
Part No. (P/N) : YTW102 (692535-002)
Composition : Sn2.0CuRE
Date of Sample Received : 21 Sep 2012
Testing Period : 21 Sep 2012 - 25 Sep 2012
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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Test Report

No. SHAEC1216714749

Date: 25 Sep 2012

Page 2 of 5

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-167147.042	Silvery wire

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

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

Test Item(s)	Limit	Unit	MDL	042
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	177
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	◇	Negative
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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Test Report

No. SHAEC1216714749

Date: 25 Sep 2012

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Test Item(s)	Limit	Unit	MDL	042
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

(1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II

(2) ♦Spot-test:

Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)

♦Boiling-water-extraction:

Negative = Absence of Cr(VI) coating

Positive = Presence of Cr(VI) coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

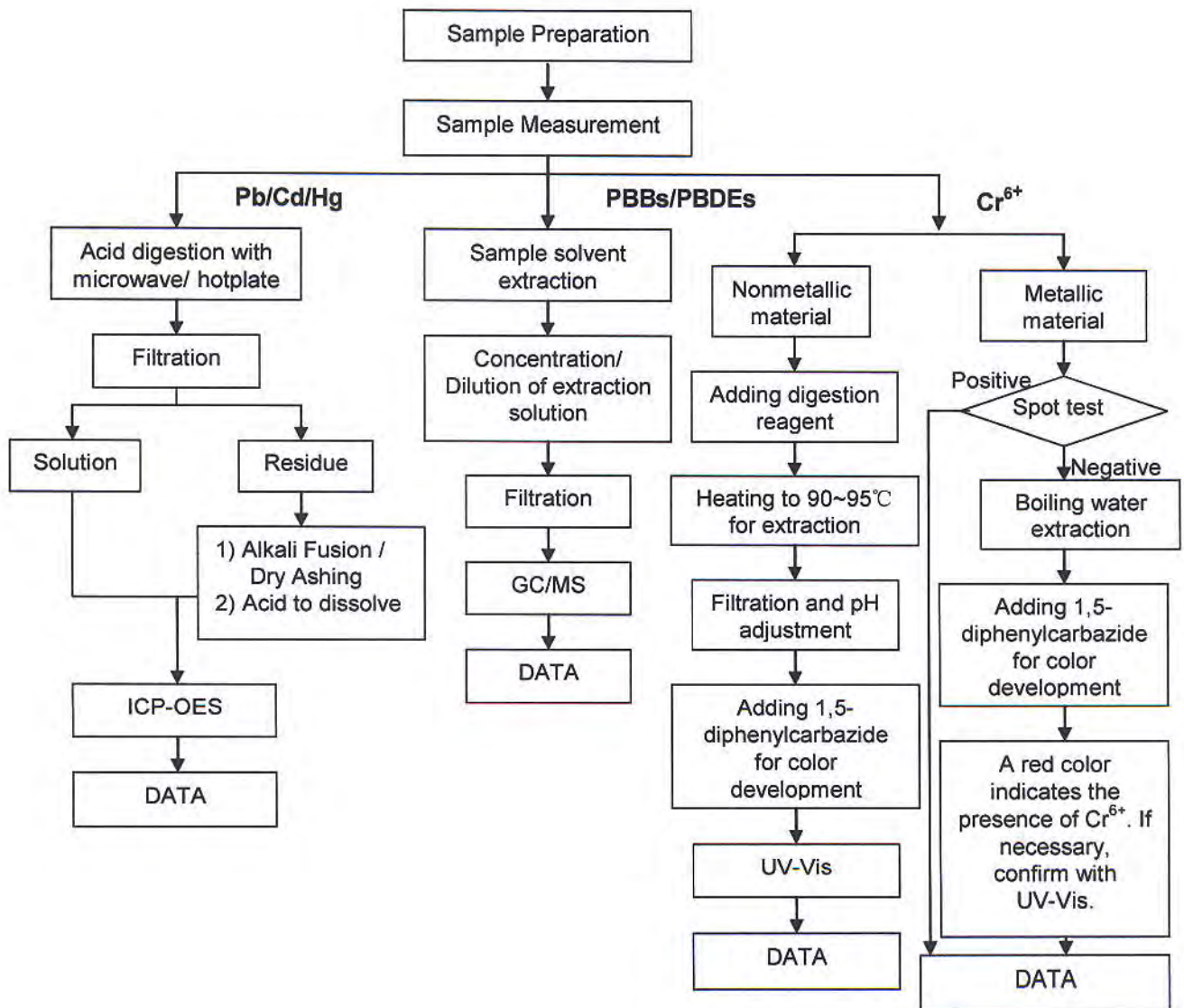
For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Jan Shi/Yoyo Wang/Allen Xiao/Gary Xu
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/ Linda Li
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ and PBBs/PBDEs test method excluded)



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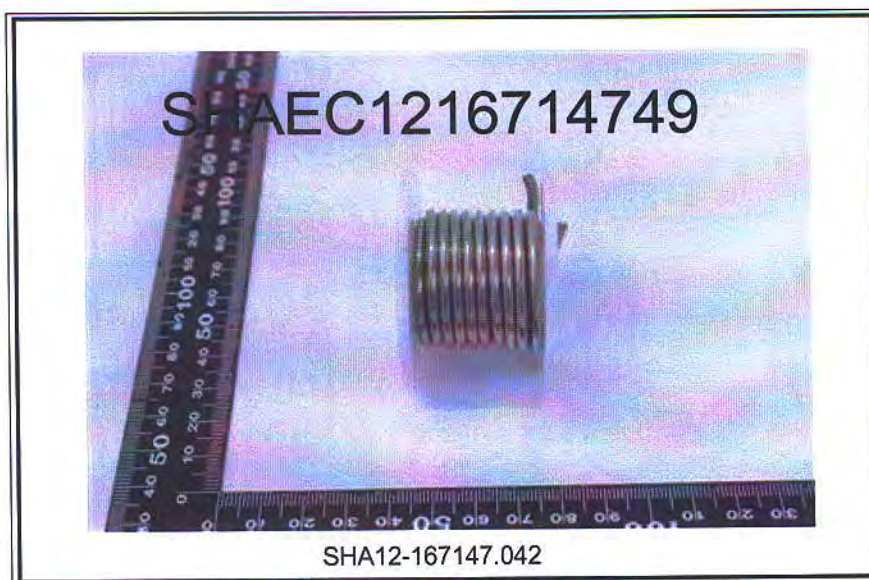
Test Report

No. SHAEC1216714749

Date: 25 Sep 2012

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Sample photo:



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Test Report

No. SHAEC1219975401

Date: 19 Nov 2012

Page 1 of 7

3M CHINA LIMITED

222# TIAN LIN ROAD, SHANGHAI (200233)

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

SGS Job No. : SP12-033081 - SH

Date of Sample Received : 14 Nov 2012

Testing Period : 14 Nov 2012 - 19 Nov 2012

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.



JJ Fan
Approved Signatory

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Test Report

No. SHAEC1219975401

Date: 19 Nov 2012

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-199754.001	Brown solid

Remarks :

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

RoHS Directive 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)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	2	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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Test Report

No. SHAEC1219975401

Date: 19 Nov 2012

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Test Item(s)	Limit	Unit	MDL	001
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	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

Hexabromocyclododecane (HBCDD)

Test Method : Determination of HBCDD by GC-MS based on IEC 62321:2008.

Test Item(s)	Unit	MDL	001
Hexabromocyclododecane (HBCDD)	mg/kg	10	ND

Notes :

- (1) Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC:
Hexabromocyclododecane (HBCDD) is considered as a priority for risk evaluation and substance restriction.

Phthalates

Test Method : Determination of phthalates by GC-MS based on EN 14372:2004.

Test Item(s)	Unit	MDL	001
Dibutyl Phthalate (DBP)	%	0.003	ND
Benzylbutyl Phthalate (BBP)	%	0.003	ND
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	ND

Notes :

- (1) Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC:
Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP) and Dibutyl phthalate (DBP) are considered as a priority for risk evaluation and substance restriction.

Test Report

No. SHAEC1219975401

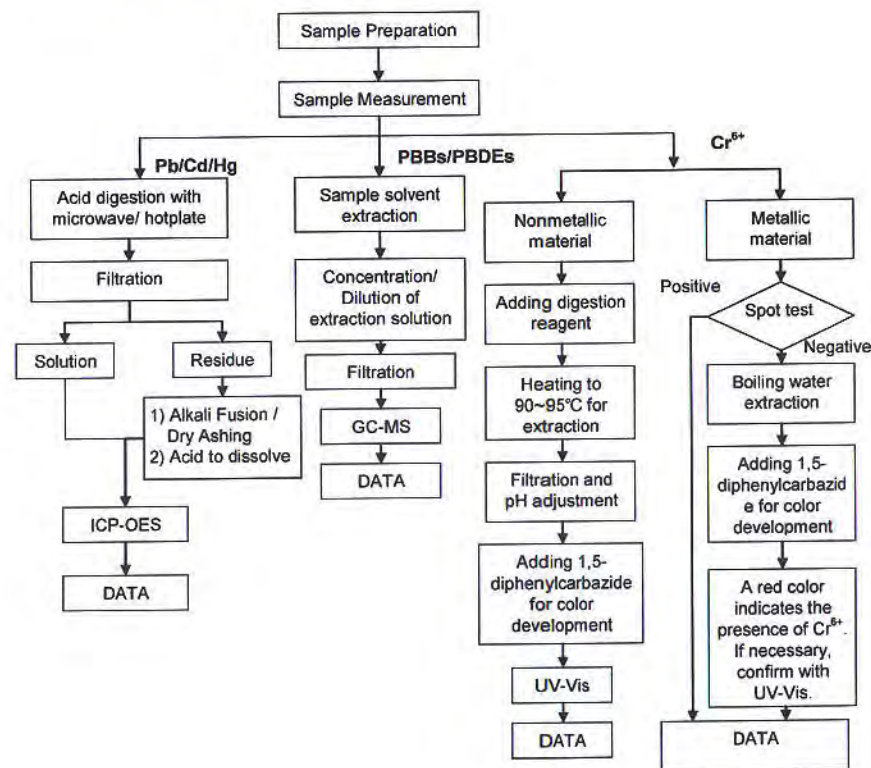
Date: 19 Nov 2012

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ATTACHMENTS

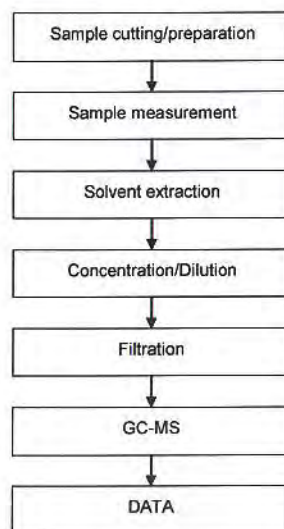
RoHS Testing Flow Chart

- 1) Name of the person who made testing: Jan Shi/Yoyo Wang/Allen Xiao/Gary Xu
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/ Linda Li
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs test method excluded)



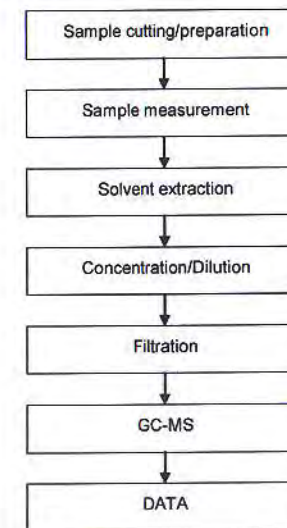
Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Elyn Yao
- 2) Name of the person in charge of testing: Rachel Zhang



HBCDD Testing Flow Chart

- 1) Name of the person who made testing: Gary Xu
- 2) Name of the person in charge of testing: Jessy Huang



Test Report

No. SHAEC1219975401

Date: 19 Nov 2012

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Sample photo:



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Test Report

No. SHAEC1219975401

Date: 19 Nov 2012

Page 1 of 6

3M CHINA LIMITED

222# TIAN LIN ROAD, SHANGHAI (200233)

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

SGS Job No. : SP12-033081 - SH

Date of Sample Received : 14 Nov 2012

Testing Period : 14 Nov 2012 - 19 Nov 2012

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.

JJ Fan

Approved Signatory

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SGS (Shanghai) Technical Service Co., Ltd.
Testing Laboratory

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

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SGS

Test Report

No. SHAEC1219975401

Date: 19 Nov 2012

Page 2 of 6

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-199754.001	Brown solid

Remarks :

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

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

Halogen

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

Test Item(s)	Unit	MDL	001
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

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Test Report

No. SHAEC1219975401

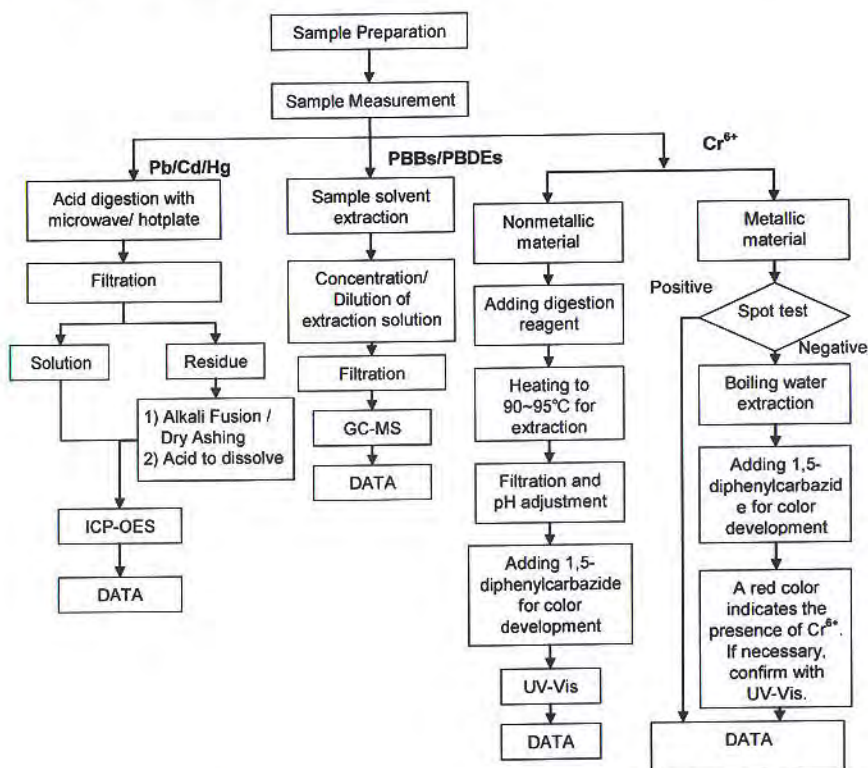
Date: 19 Nov 2012

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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Jan Shi/Yoyo Wang/Allen Xiao/Gary Xu
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/ Linda Li
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs test method excluded)



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Test Report

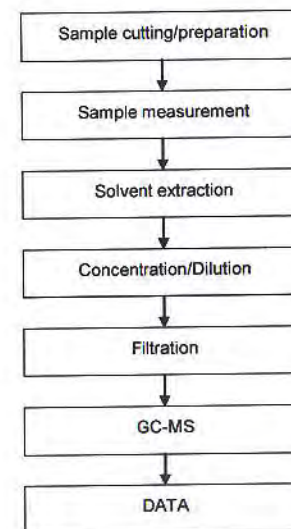
No. SHAEC1219975401

Date: 19 Nov 2012

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Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Elyn Yao
- 2) Name of the person in charge of testing: Rachel Zhang



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Test Report

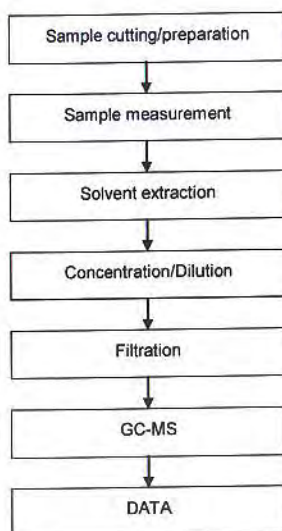
No. SHAEC1219975401

Date: 19 Nov 2012

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HBCDD Testing Flow Chart

- 1) Name of the person who made testing: Gary Xu
- 2) Name of the person in charge of testing: Jessy Huang



Test Report

No. SHAEC1219975401

Date: 19 Nov 2012

Page 6 of 6

Sample photo:



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Test Report

No. TSNEC1200272601

Date: 09 Apr 2012

Page 1 of 8

BEIJING HYSTIC NEW MATERIALS CO., LTD.

5 SHUANGYUAN ROAD, BADACHU HIGH-TECH ZONE, BEIJING.

100041, CHINA

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

SGS Job No. : TP12-004950 - TJ

Model No. : EP608

Date of Sample Received : 31 Mar 2012

Testing Period : 31 Mar 2012 - 09 Apr 2012

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.

Aimy Wang
Approved Signatory

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Test Report

No. TSNEC1200272601

Date: 09 Apr 2012

Page 2 of 8

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	TSN12-002726.001	ivory-white paste

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)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	2	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

- (1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II.

Hexabromocyclododecane (HBCDD)

Test Method : With reference to IEC 62321:2008, analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Hexabromocyclododecane (HBCDD)	mg/kg	10	ND

Notes :

- (1) Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC:
Hexabromocyclododecane (HBCDD) is considered as a priority for risk evaluation and substance restriction.

Phthalates

Test Method : With reference to EN14372: 2004, analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Dibutyl Phthalate (DBP)	% (w/w)	0.003	ND
Benzylbutyl Phthalate (BBP)	% (w/w)	0.003	ND
Bis-(2-ethylhexyl) Phthalate (DEHP)	% (w/w)	0.003	ND

Notes :

- (1) Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC:
Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP) and Dibutyl phthalate (DBP) are considered as a priority for risk evaluation and substance restriction.

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Test Report

No. TSNEC1200272601

Date: 09 Apr 2012

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Result shown is of the total weight of wet sample

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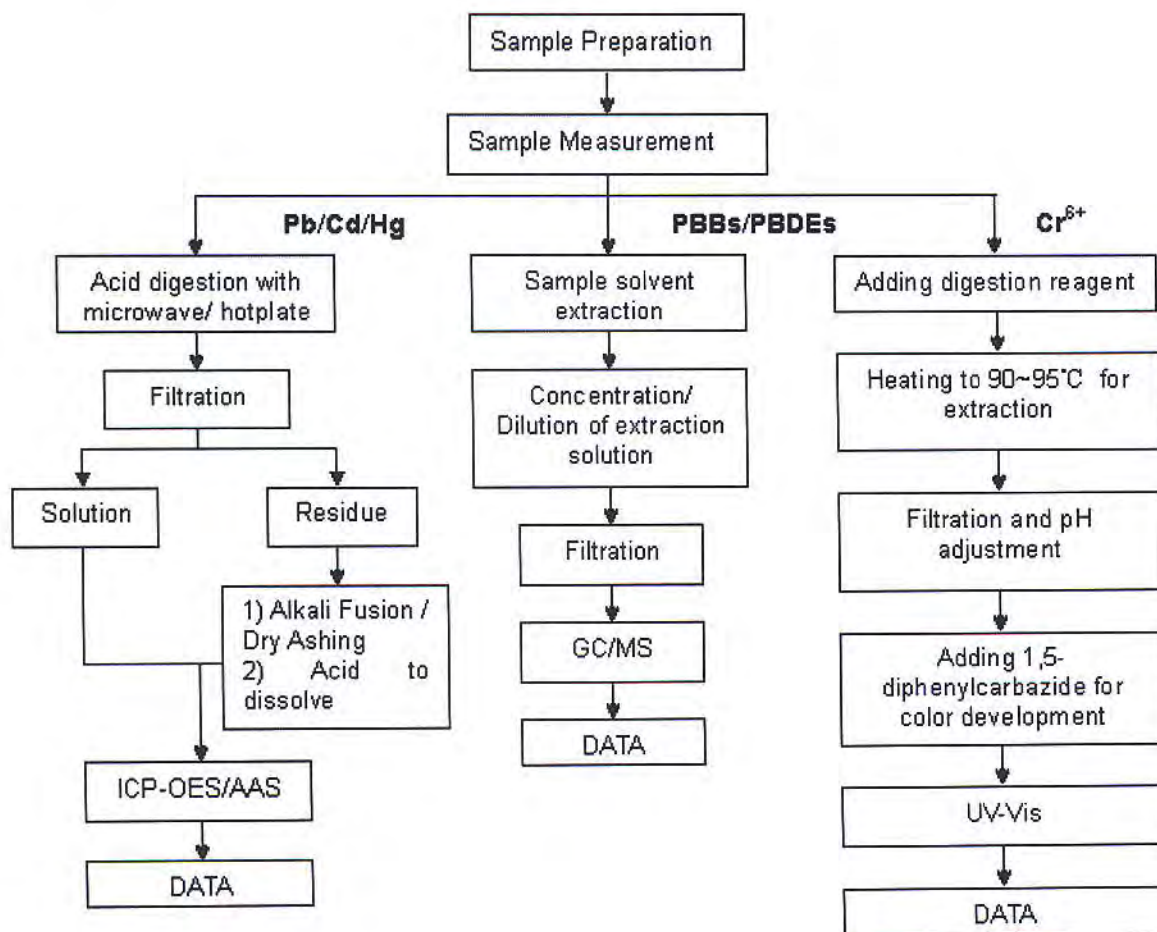
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ATTACHMENTS

Cd/Pb/Hg/Cr⁶⁺/PBBs/PBDEs Flow Chart

- 1) Name of the person who made testing: Aaron Wang/Jason Li /Angell Yao
- 2) Name of the person in charge of testing: Cindy Yin/Rex Zhu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ and PBBs/PBDEs test method excluded)



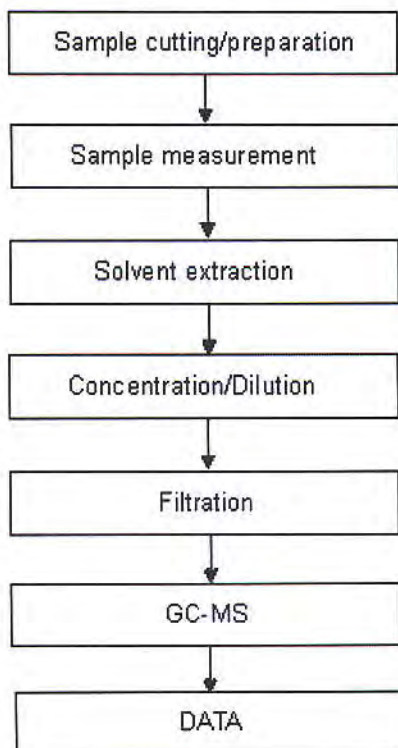
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ATTACHMENTS

HBCDD Testing Flow Chart

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



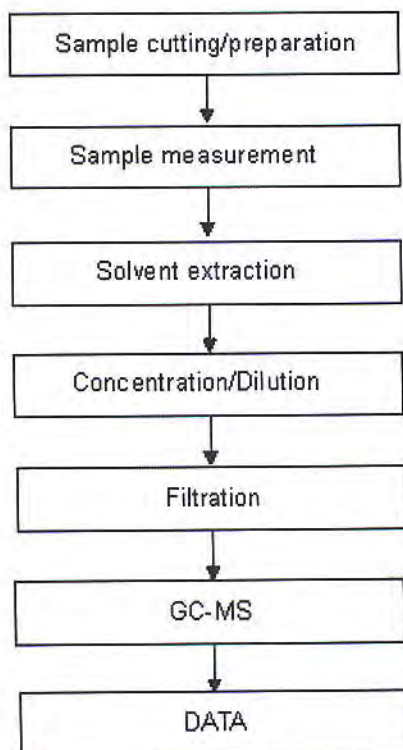
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ATTACHMENTS

Phthalate Testing Flow Chart

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



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Test Report

No. TSNEC1200272601

Date: 09 Apr 2012

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Sample photo:



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Test Report

No. TSNEC1200272602

Date: 09 Apr 2012

Page 1 of 4

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

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

SGS Job No. : TP12-004950 - TJ
Model No. : EP608
Date of Sample Received : 31 Mar 2012
Testing Period : 31 Mar 2012 - 09 Apr 2012
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.

Aimy Wang
Approved Signatory

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Test Report

No. TSNEC1200272602

Date: 09 Apr 2012

Page 2 of 4

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	TSN12-002726.002	ivory-white paste

Remarks :

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

Halogen

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

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Fluorine (F)	mg/kg	50	57
Chlorine (Cl)	mg/kg	50	7557
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

Result shown is of the total weight of wet sample

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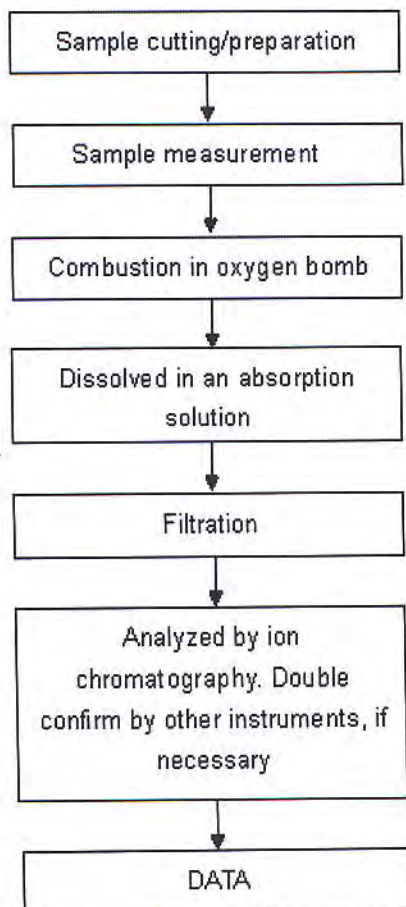
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ATTACHMENTS

Halogen Testing Flow Chart

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



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Test Report

No. TSNEC1200272602

Date: 09 Apr 2012

Page 4 of 4

Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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中国·天津市经济技术开发区第五大街41号SGS大厦 邮编: 300457 | (86-22) 65288000 | (86-22) 25295252 e sgs.china@sgs.com

Member of the SGS Group (SGS SA)

TEST REPORT

NO.: A002R121008024-2R02

Date: Oct.10, 2012

Page 1 of 4

Customer: SuZhou FuHong Electronic Industrial Co., Ltd.

Address: NO. 89 WEI DU ROAD, WANGTING TOWN, XIANGCHENG DISTRICT, SUZHOU, CHINA

Report on the submitted sample said to be

Sample name: Lead wire copper shell

Model: /

Item/Lot No.: /

Material: /

Buyer: /

Supplier: /

Manufacturer: /

Sample received date: Oct. 08, 2012

Testing period: From Oct. 08, 2012 to Oct. 10, 2012

Testing Requested

As specified by client, to determine the Lead, Cadmium, Mercury & Hexavalent Chromium content in the submitted sample in accordance with Directive 2002/95/EC (RoHS).

Testing method:

Testing Item	Pretreatment method	Measuring instrument	MQL
Lead (Pb)	IEC 62321: 2008, section 9	ICP-OES	2mg/kg
Cadmium (Cd)	IEC 62321: 2008, section 9	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321: 2008, section 7	ICP-OES	2 mg/kg
Chromium (Cr VI)	IEC 62321: 2008, Annex B	UV-VIS	0.02mg/kg*

Note:

-* 0.02 mg/kg refers to the MQL of sample extraction liquid.

Conclusion:

-When tested as specified the submitted sample complied with the requirements of commission Decision of 18 Aug 2005 amending Directive 2002/95/EC notified under document 2005/618/EC.

*****FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)*****

Signed for and on behalf of

Shenzhen AOV Testing Technology Co., Ltd, Kunshan Branch

Project Leader:

Li Tingting, Maggie

Chemical Test Director

Reviewed by:

Wang Wexin, Weikin

Technical Director

Approved by:

Yuan Qi, Mickey

Lab Manager

TEST REPORT

NO.: A002R121008024-2R02

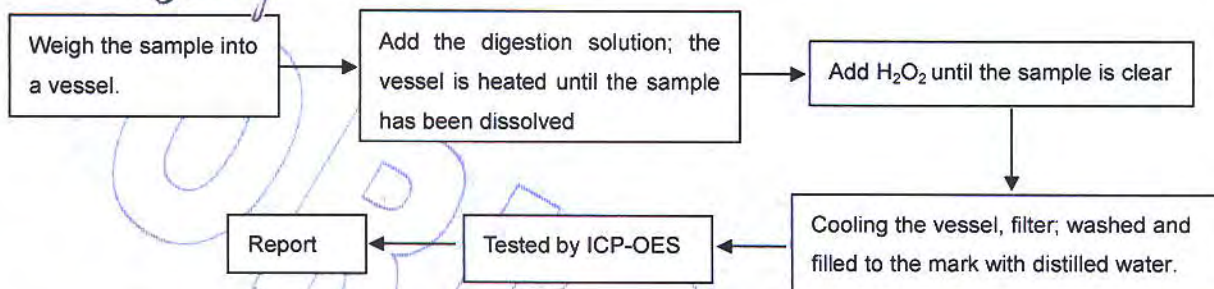
Date: Oct.10, 2012

Page 2 of 4

Test Flow:

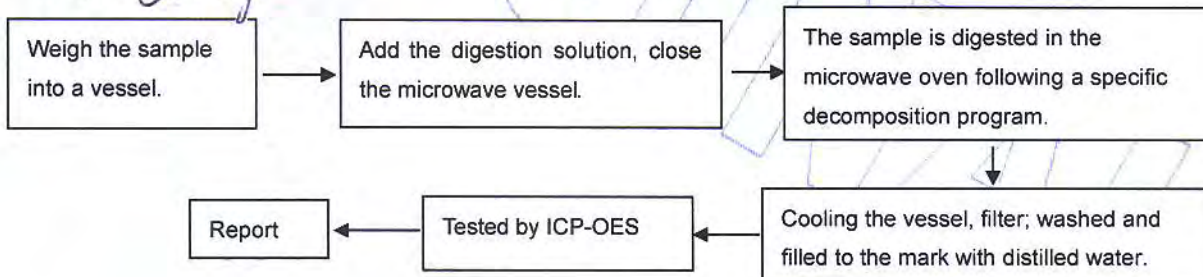
1. To Determine Lead, Cadmium Content: (Metal substrate)

Tested by: *Condy*



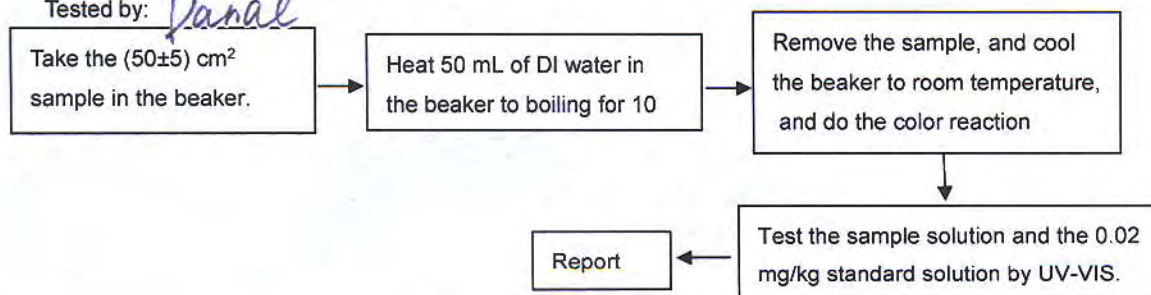
2. To Determine Mercury Content: (Metal substrate)

Tested by: *Condy*



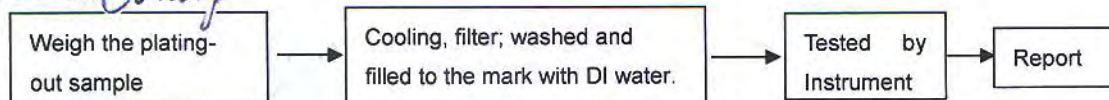
3. To Determine Hexavalent Chromium Content (boiling- water- extraction): (Metal substrate)

Tested by: *Danae*



4. To Determine Lead, Cadmium and Mercury Content: (Plating)

Tested by: *Condy*



TEST REPORT

NO.: A002R121008024-2R02

Date: Oct.10, 2012

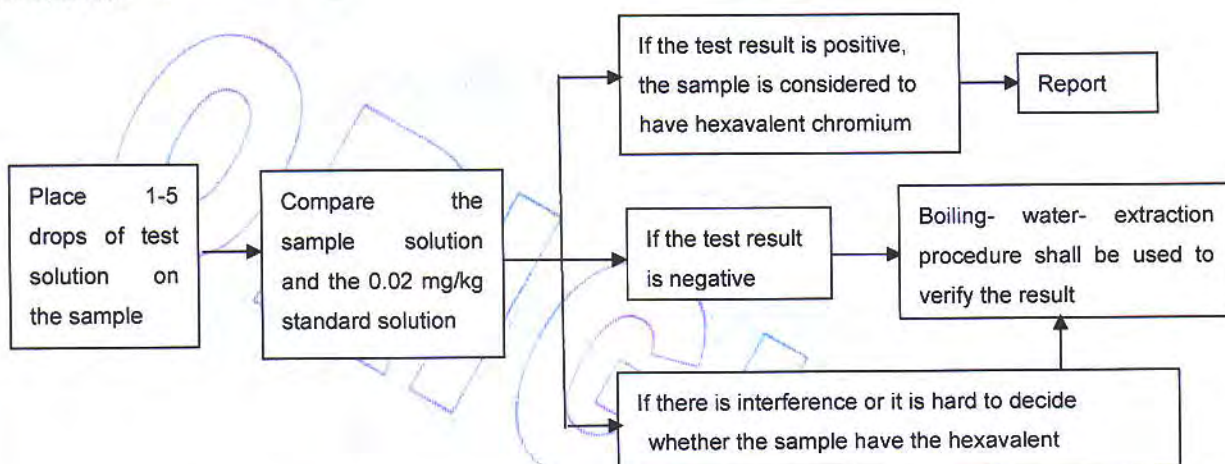
Page 3 of 4

5. To Determine Hexavalent Chromium Content in colorless and colored chromate coating on metals: (Plating)

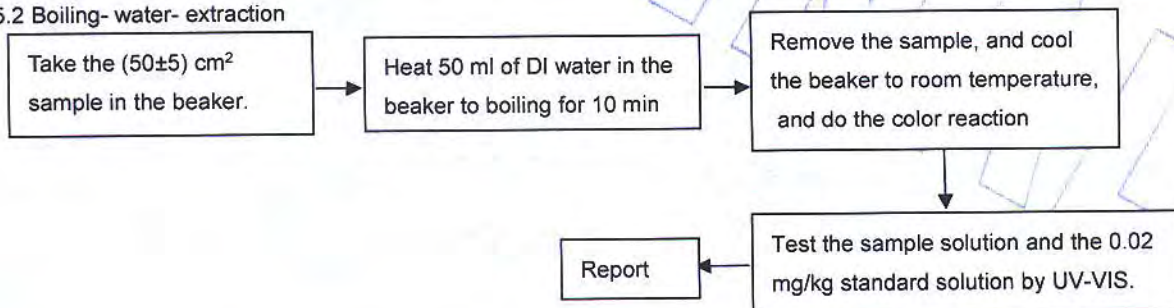
Tested by:

Danae

5.1 Spot-test



5.2 Boiling- water- extraction



Sample Description:

Code	Sample Description	Code	Sample Description
2-1	Lead wire substrate	2-3	Copper shell substrate
2-2	Lead wire Plating	2-4	Copper shell Plating

Test Results:

Item	Unit	RoHS Limit	Result			
			2-1	2-2**	2-3	2-4**
Lead (Pb)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.
Cadmium (Cd)	mg/kg	100	N.D.	N.D.	N.D.	N.D.
Mercury (Hg)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.
Chromium (CrVI)	mg/kg	1000	Negative	Negative	Negative	Negative

TEST REPORT

NO.: A002R121008024-2R02

Date: Oct.10, 2012

Page 4 of 4

Note:

- The new RoHS directive 2011/65/EU, on Jul. 21, 2011 come into force, on Jan. 03, 2013 the formal implementation, Directive 2002/95/EC shall be repealed simultaneously.
- Specimens, which requested to determine Lead, Cadmium and Mercury Content, have been dissolved completely.
- mg/kg=ppm
- N.D.=not detected(<MQL)
- MQL=Method Quantitation Limit
- Negative=Absence of Cr (VI);
- Positive=Presence of Cr (VI);
- Uncertain= can not verify whether the sample have Hexavalent Chromium by spot-test.
(The tested sample should be further verified by boiling-water-extraction method if the spot test result is uncertain or negative.)
- **The test is based on the following assumption: The sample plating is a single layer and each part is uniform. The test result maybe cannot stand for the physical truth of sample plating.
- Photo is included

Photograph of Sample



Lead wire copper shell

End of Report



TEST REPORT

NUMBER: SH AH00346635

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATT N: A.DIVIETRO/D.UNTIEDT

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

ONE (1) SUBMITTED SAMPLE SAID TO BE **RED INK.**
PART DESCRIPTION : INK-RED.
PART NUMBER : 425901.
DATE SAMPLE RECEIVED : OCTOBER.19, 2012.
DATE TEST STARTED : OCTOBER.19, 2012.

TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

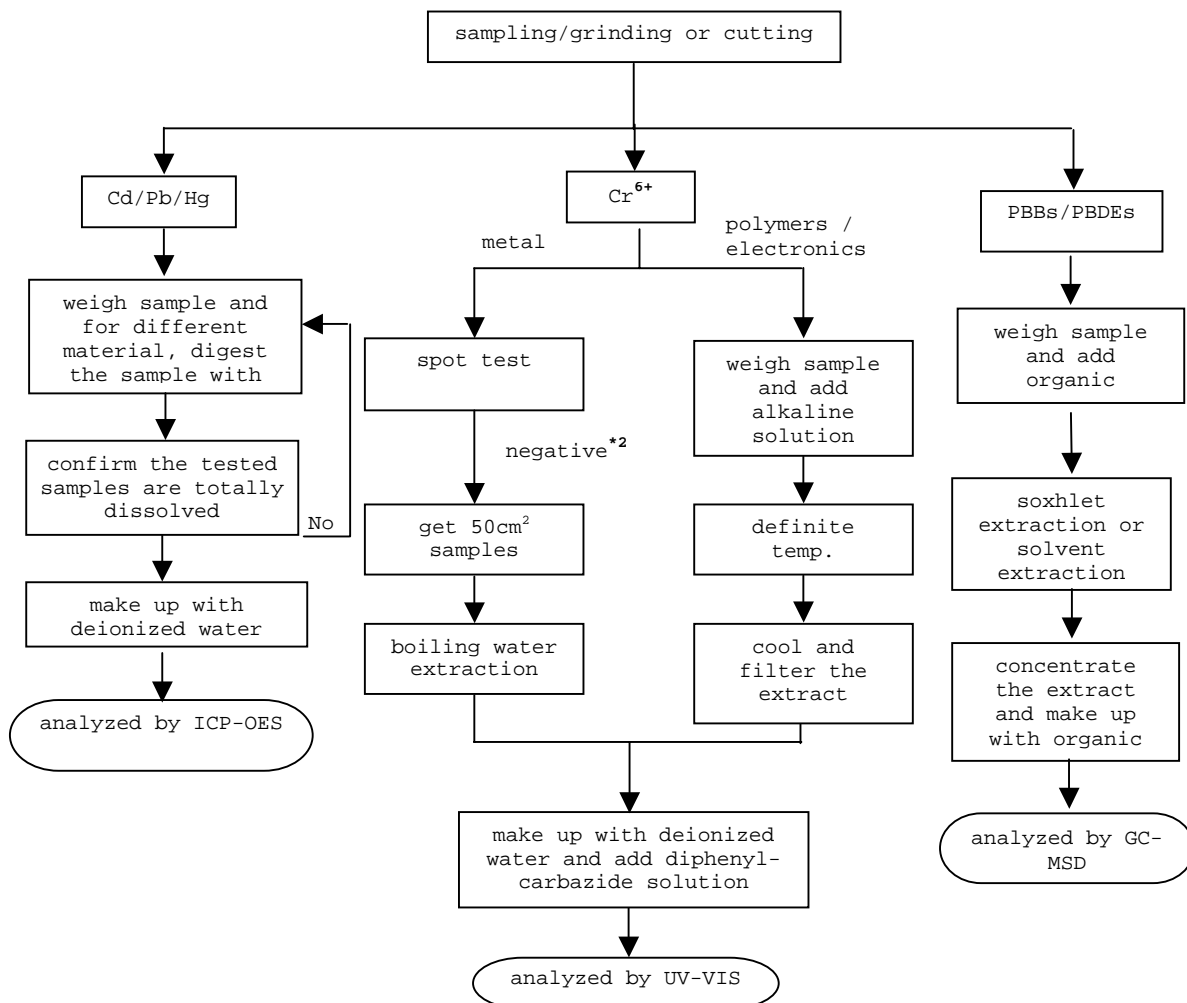
Testing Item T	Testing Method R	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr ⁶⁺) content	With reference to IEC 62321 edition 1.0:2008 in annex C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS 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 ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ ,HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00346635

TESTS CONDUCTED

2 (I) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	1000
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Halogen Content	With reference to EN 14582:2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED**Intertek Testing Services Ltd., Shanghai**

Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233

上海天祥質量技術服務有限公司

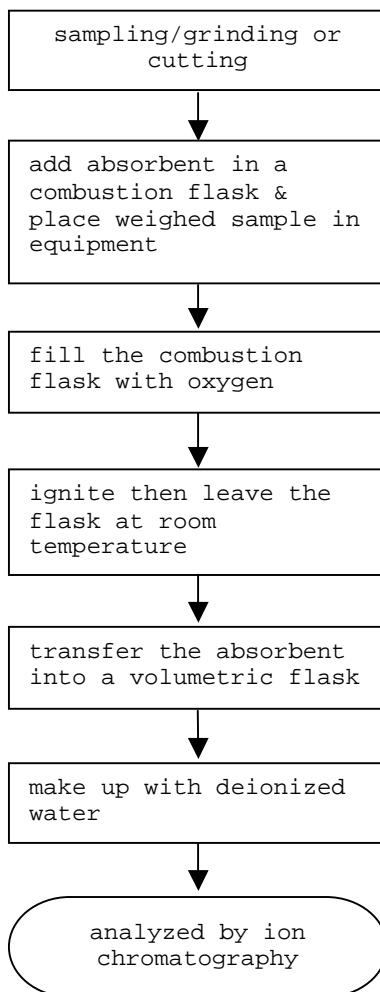
上海市宜山路 801 號金陵商務廣場 B 座 200233

Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740

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TESTS CONDUCTED
(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00346635

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

TESTING ITEM R	RESULT(ppm)
HBCD (HEXABROMOCYCLODODECANE)	ND

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

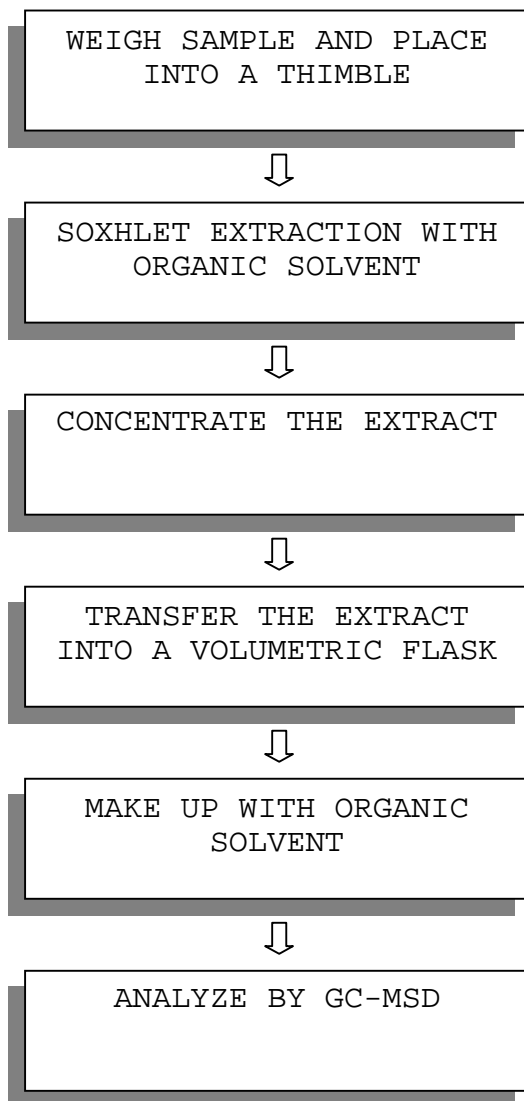
TESTING ITEM TE	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SH AH00346635

TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

WITH REFERENCE TO EN14372, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND R</u>	<u>ESULT (%W/W)</u>	<u>LIMIT(%W/W)</u> <u>(MAX.)</u>
DIBUTYL PHTHALATE (DBP)	ND	---
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	---
BENZYL BUTYL PHTHALATE (BBP)	ND	---
SUM OF THREE PHTHALATES	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO ANNEX XVII ITEMS 51 & 52 OF THE REACH REGULATION (EC) NO. 1907/2006 & AMENDMENT NO.552/2009 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

5 PHT HALATE CONTENT TEST

WITH REFERENCE TO CPSC-CH-C1001-09.3, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND R</u>	<u>ESULT (%W/W)</u>	<u>LIMIT(%W/W)</u> <u>(MAX.)</u>
DI-BUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT 2008 & AMENDMENT H.R.2715 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

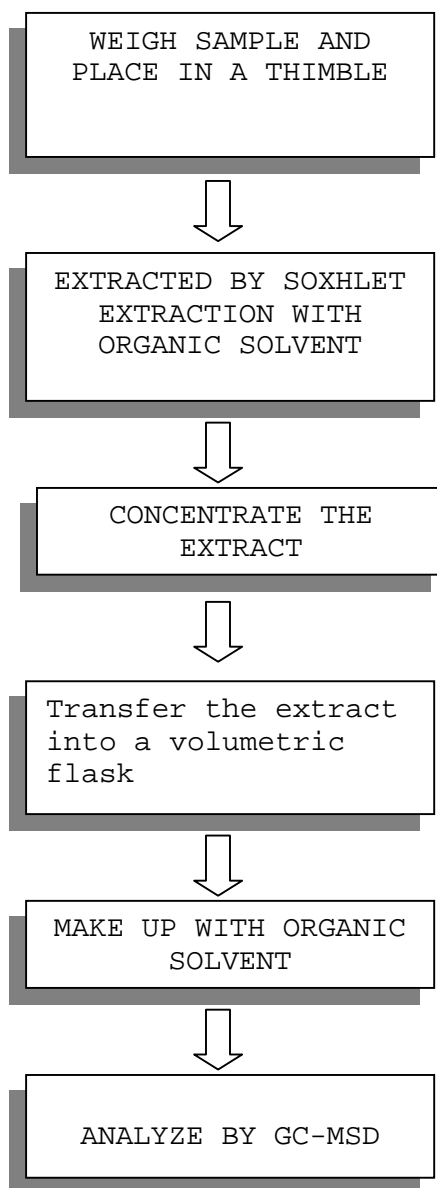
DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

DATE SAMPLE RECEIVED : OCT.19, 2012
TESTING PERIOD : OCT.19, 2012 TO OCT.23, 2012

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

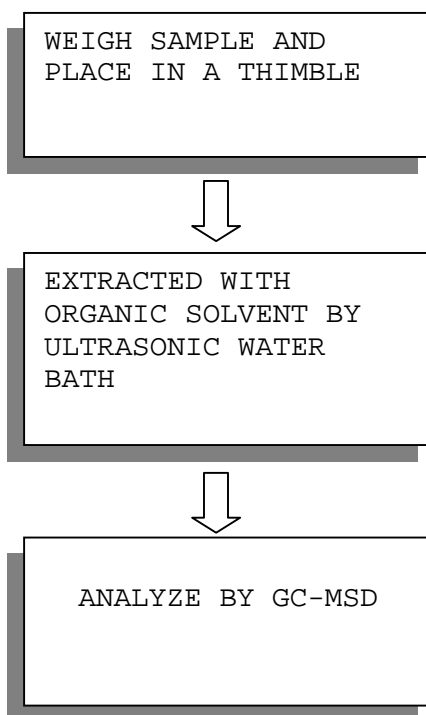
TEST FOR PHTHALATES CONTENTS (EN14372)



TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (CPSC-CH-C1001-09.3)



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345635

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATT N: A.DIVIETRO/D.UNTIEDT

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

ONE (1) SUBMITTED SAMPLE SAID TO BE **BLACK INK.**
PART DESCRIPTION : INK-BLACK.
PART NUMBER : 425902.
DATE SAMPLE RECEIVED : OCTOBER.15, 2012.
DATE TEST STARTED : OCTOBER.15, 2012.

TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr ⁶⁺) content	With reference to IEC 62321 edition 1.0:2008 in annex C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

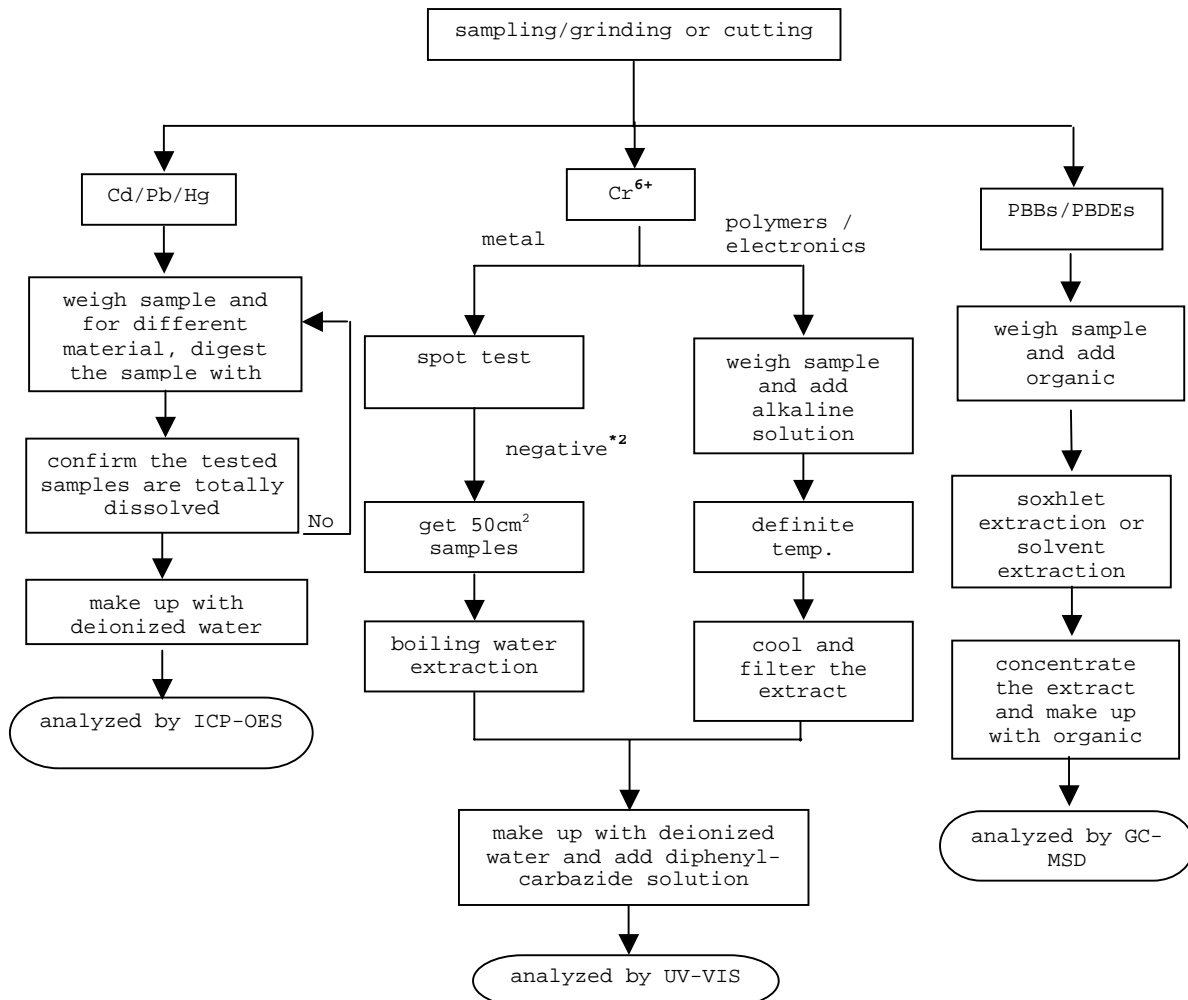
TO BE CONTINUED

TESTS 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 ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ ,HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345635

TESTS CONDUCTED

2 (I) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	150
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = Parts per million = mg/kg
ND = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Halogen Content	With reference to EN 14582:2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

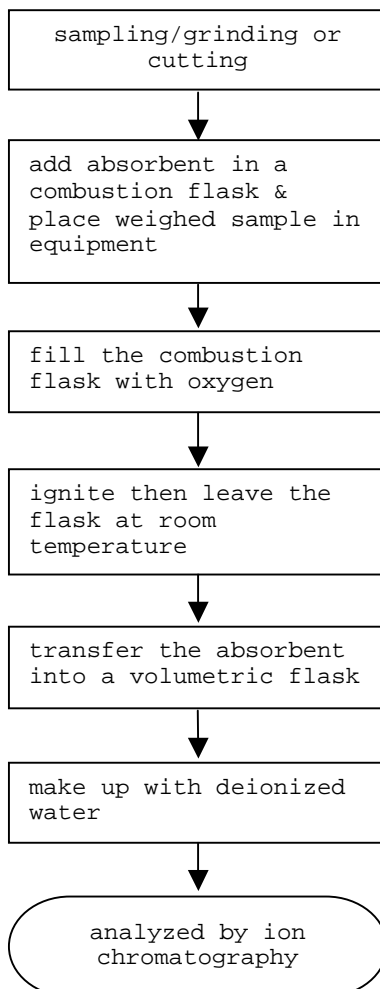
Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345635

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

TESTING ITEM R	RESULT(ppm)
HBCD (HEXABROMOCYCLODODECANE)	ND

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

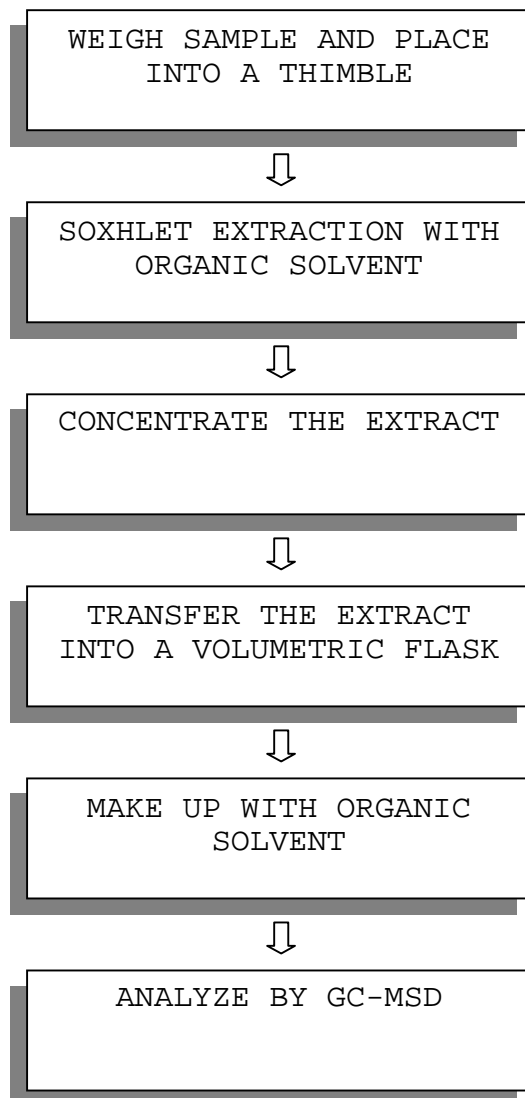
TESTING ITEM TE	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT

*****
TO BE CONTINUED

TEST REPORT

NUMBER: SH AH00345635

TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

WITH REFERENCE TO EN14372, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND R</u>	<u>ESULT (%W/W)</u>	<u>LIMIT(%W/W)</u> <u>(MAX.)</u>
DIBUTYL PHTHALATE (DBP)	ND	---
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	---
BENZYL BUTYL PHTHALATE (BBP)	ND	---
SUM OF THREE PHTHALATES	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO ANNEX XVII ITEMS 51 & 52 OF THE REACH REGULATION (EC) NO. 1907/2006 & AMENDMENT NO.552/2009 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

5 PHT HALATE CONTENT TEST

WITH REFERENCE TO CPSC-CH-C1001-09.3, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND R</u>	<u>ESULT (%W/W)</u>	<u>LIMIT(%W/W)</u> <u>(MAX.)</u>
DI-BUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT 2008 & AMENDMENT H.R.2715 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

DATE SAMPLE RECEIVED: OCT.15, 2012

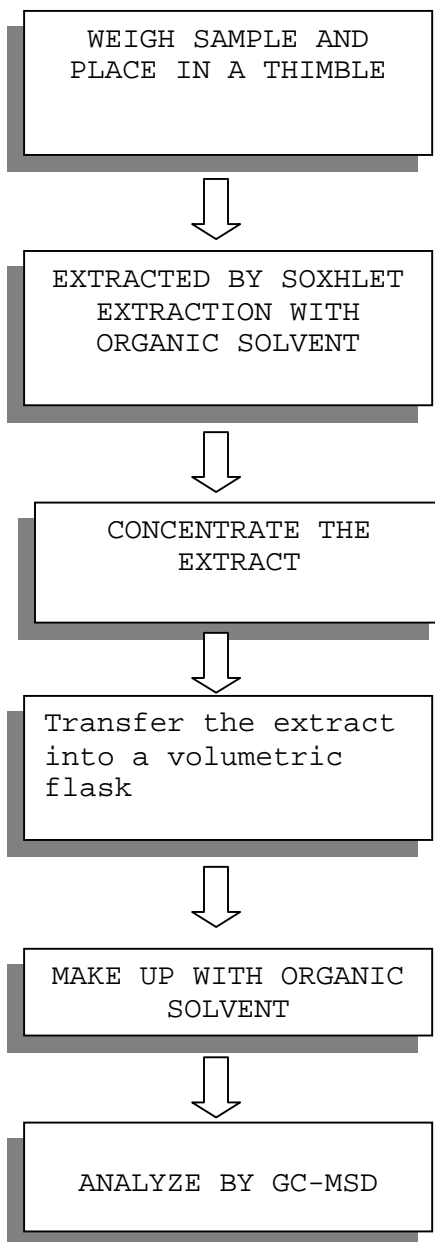
TESTING PERIOD : OCT.15, 2012 TO OCT.18, 2012

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)

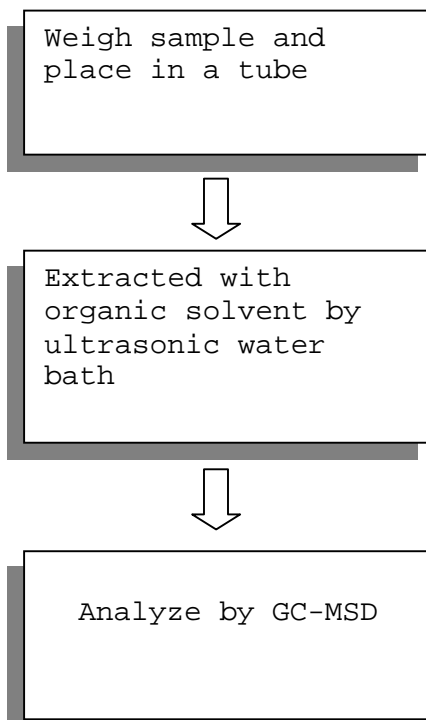


TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (CPSC-CH-C1001-09.3)



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345662

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
AT TN: A.DIVIETRO/D.UNTIEDT

DATE: OCT 26, 2012

SAMPLE DESCRIPTION:

ONE (1) SUBMITTED SAMPLE SAID TO BE **YELLOW INK.**
PART DESCRIPTION : INK-YELLOW.
PART NUMBER : 425903.
DATE SAMPLE RECEIVED : OCTOBER.15, 2012.
DATE TEST STARTED : OCTOBER.15, 2012.

TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr ⁶⁺) content	With reference to IEC 62321 edition 1.0:2008 in annex C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

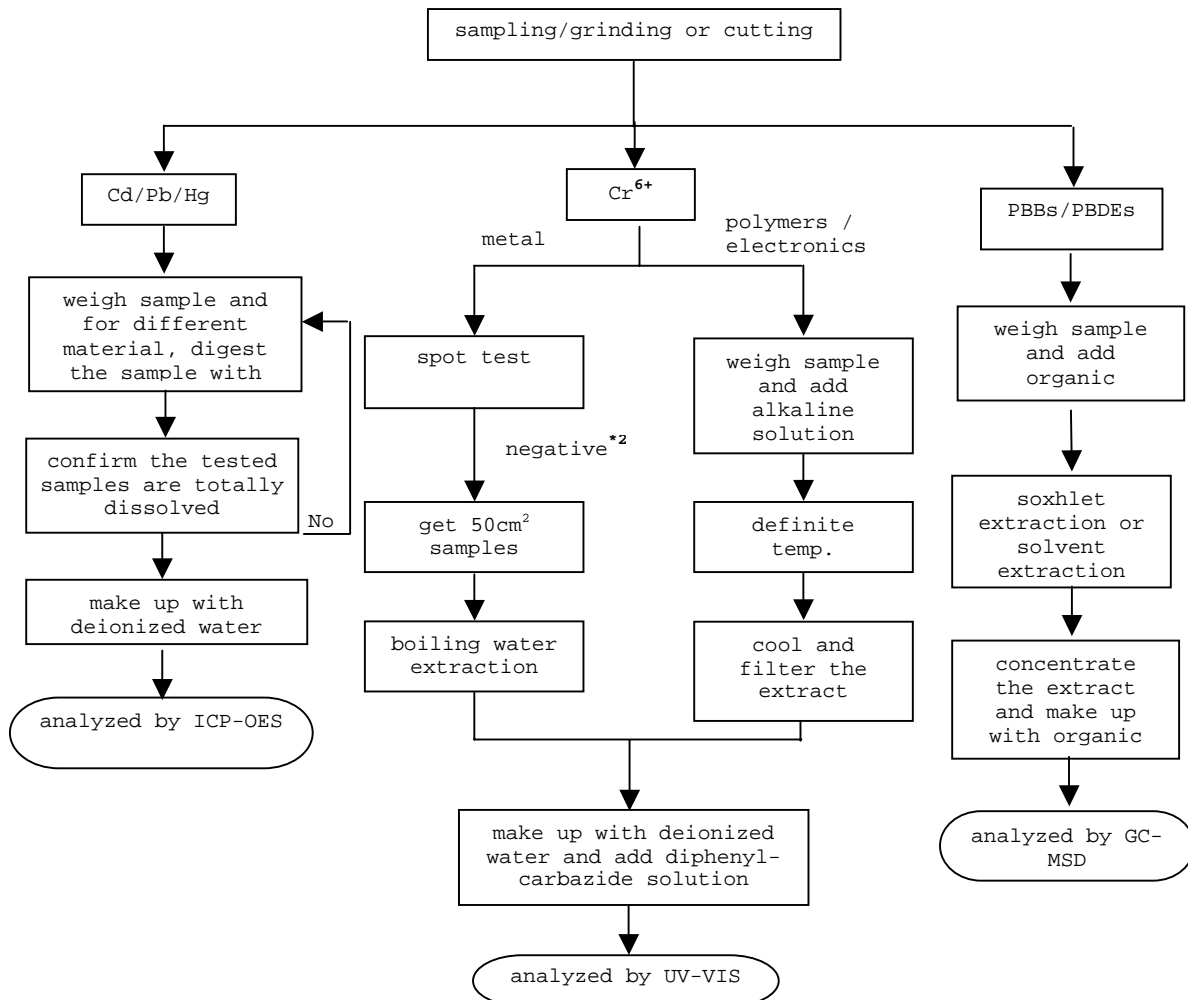
TO BE CONTINUED

TESTS 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 ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ ,HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345662

TESTS CONDUCTED

2 (I) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	7400
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = Parts per million = mg/kg

N D = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Halogen Content	With reference to EN 14582:2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

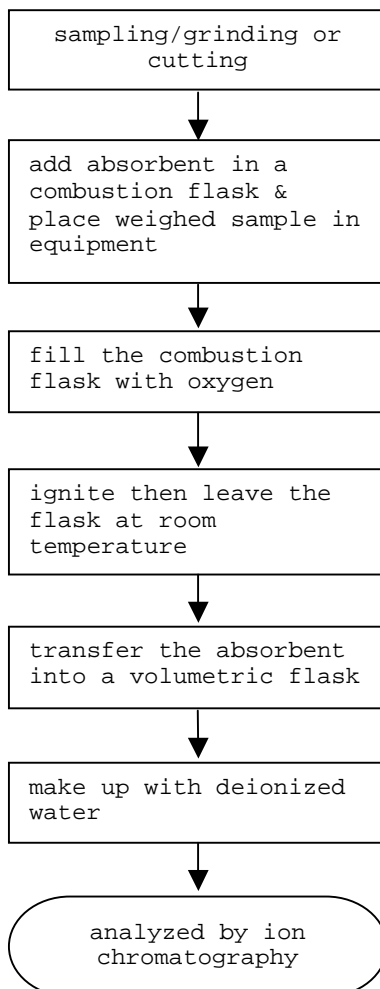
Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345662

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

TESTING ITEM R	RESULT(ppm)
HBCD (HEXABROMOCYCLODODECANE)	ND

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

TESTING ITEM T	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

Intertek Testing Services Ltd., Shanghai

Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233

上海天祥質量技術服務有限公司

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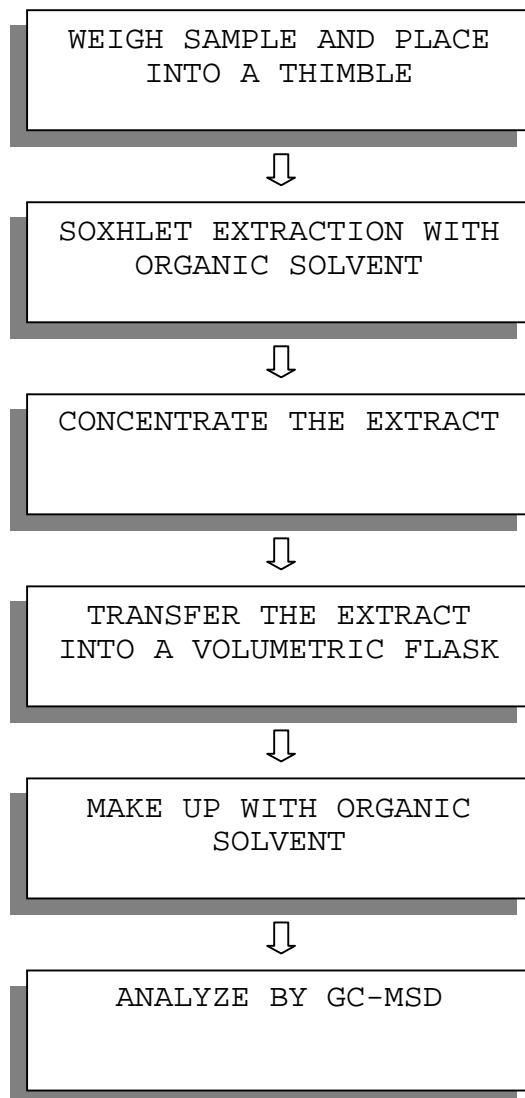
Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740

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TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT

*****
TO BE CONTINUED

TESTS CONDUCTED

4 PHthalate Content Test

WITH REFERENCE TO EN14372, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND</u> RESULT	<u>(%,W/W)</u>	<u>LIMIT(%,W/W)</u> <u>(MAX.)</u>
DIBUTYL PHTHALATE (DBP)	ND	---
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	---
BENZYL BUTYL PHTHALATE (BBP)	ND	---
SUM OF THREE PHTHALATES	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO ANNEX XVII ITEMS 51 & 52 OF THE REACH REGULATION (EC) NO. 1907/2006 & AMENDMENT NO.552/2009 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

5 PHthalate Content Test

WITH REFERENCE TO CPSC-CH-C1001-09.3, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND</u> RESULT	<u>(%,W/W)</u>	<u>LIMIT(%,W/W)</u> <u>(MAX.)</u>
DI-BUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT 2008 & AMENDMENT H.R.2715 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

DATE SAMPLE RECEIVED: OCT.15, 2012

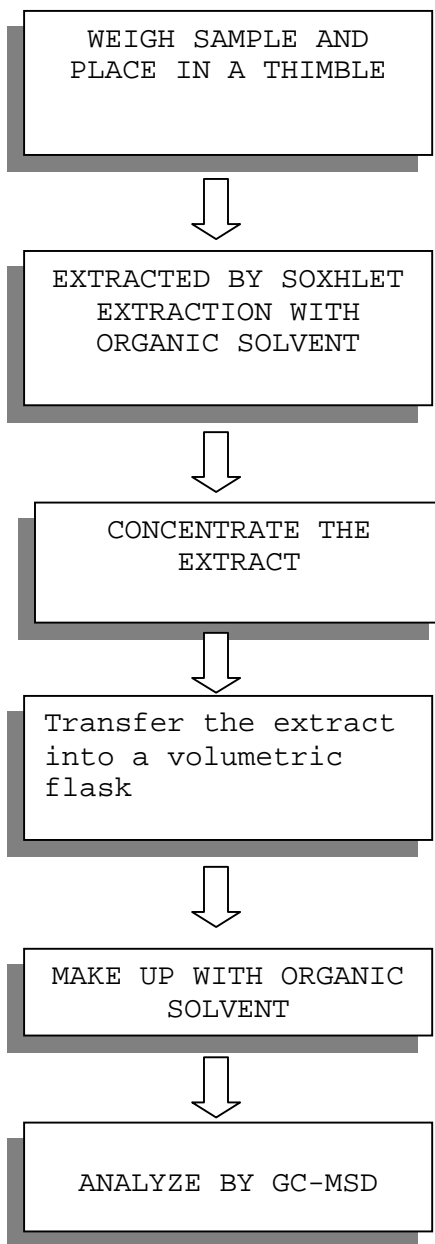
TESTING PERIOD : OCT.15, 2012 TO OCT.19, 2012

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)

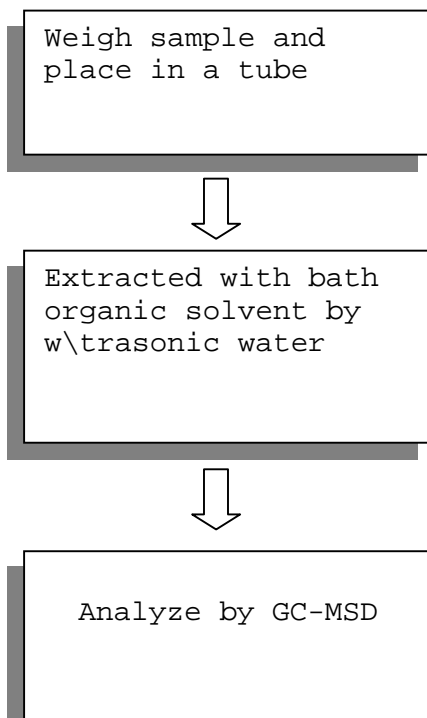


TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (CPSC-CH-C1001-09.3)



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345415

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
AT TN: A.DIVIETRO/D.UNTIEDT

DATE: OCT 26, 2012

SAMPLE DESCRIPTION:

ONE (1) SUBMITTED SAMPLE SAID TO BE **BLUE INK.**
PART DESCRIPTION : INK-BLUE.
PART NUMBER : 425904.
DATE SAMPLE RECEIVED : OCTOBER.15, 2012.
DATE TEST STARTED : OCTOBER.15, 2012.

TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

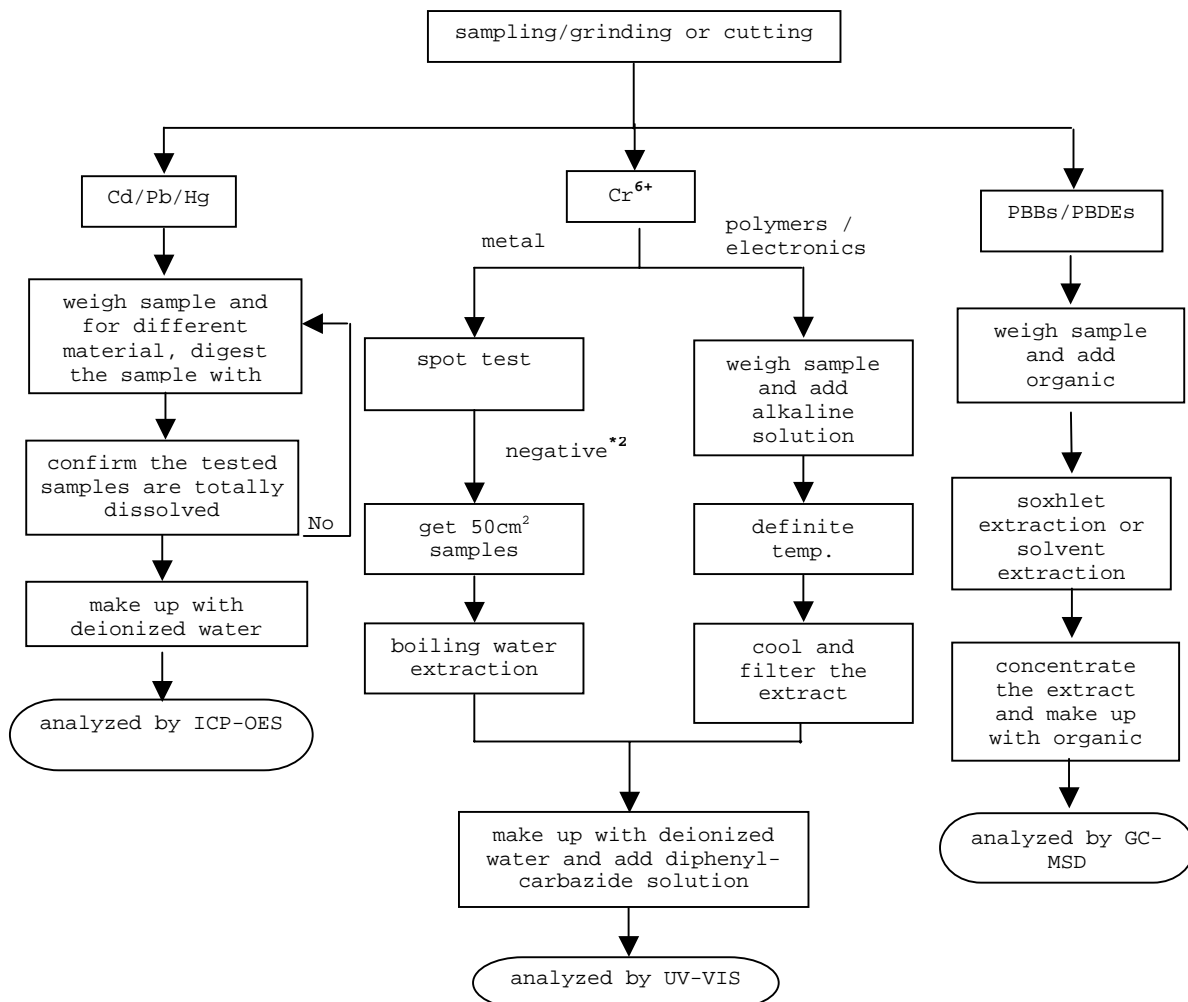
Testing Item T	Testing Method R	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr ⁶⁺) content	With reference to IEC 62321 edition 1.0:2008 in annex C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS 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 ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345415

TESTS CONDUCTED

2 (I) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	600
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = Parts per million = mg/kg

N D = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Halogen Content	With reference to EN 14582:2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

Intertek Testing Services Ltd., Shanghai

Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233

上海天祥質量技術服務有限公司

上海市宜山路 801 號金陵商務廣場 B 座 200233

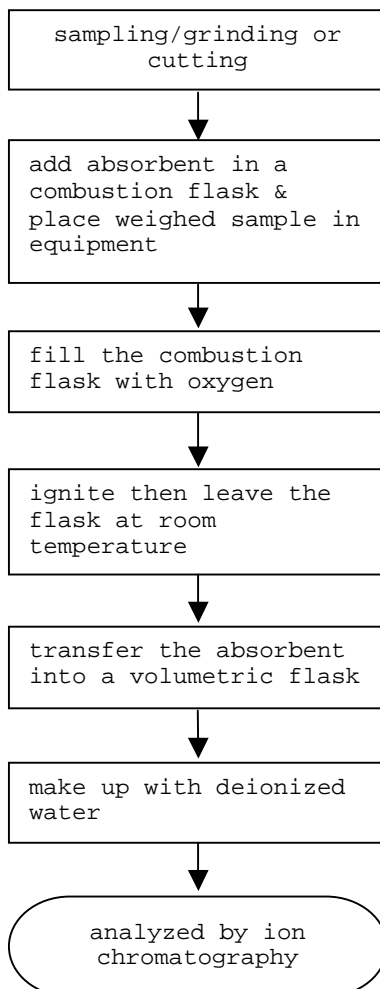
Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740

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TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345415

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

TESTING ITEM R	RESULT(ppm)
HBCD (HEXABROMOCYCLODODECANE)	ND

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

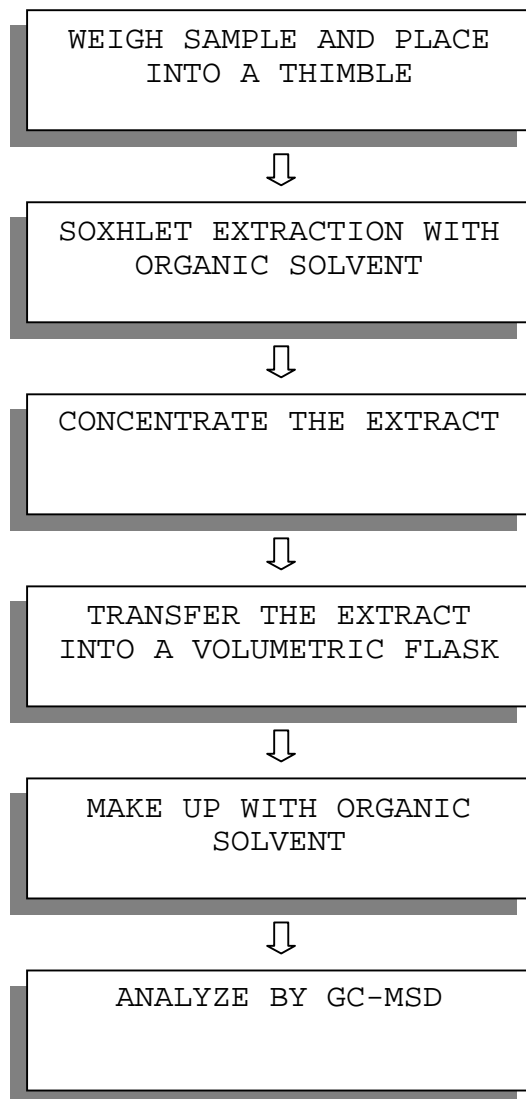
(B) TEST METHOD :

TESTING ITEM T	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



TO BE CONTINUED

TESTS CONDUCTED
4 PHTHALATE CONTENT TEST

WITH REFERENCE TO EN14372, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND</u> RESULT	<u>(%,W/W)</u>	<u>LIMIT(%,W/W)</u> <u>(MAX.)</u>
DIBUTYL PHTHALATE (DBP)	ND	---
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	---
BENZYL BUTYL PHTHALATE (BBP)	ND	---
SUM OF THREE PHTHALATES	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO ANNEX XVII ITEMS 51 & 52 OF THE REACH REGULATION (EC) NO. 1907/2006 & AMENDMENT NO.552/2009 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

5 PHTHALATE CONTENT TEST

WITH REFERENCE TO CPSC-CH-C1001-09.3, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND</u> RESULT	<u>(%,W/W)</u>	<u>LIMIT(%,W/W)</u> <u>(MAX.)</u>
DI-BUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

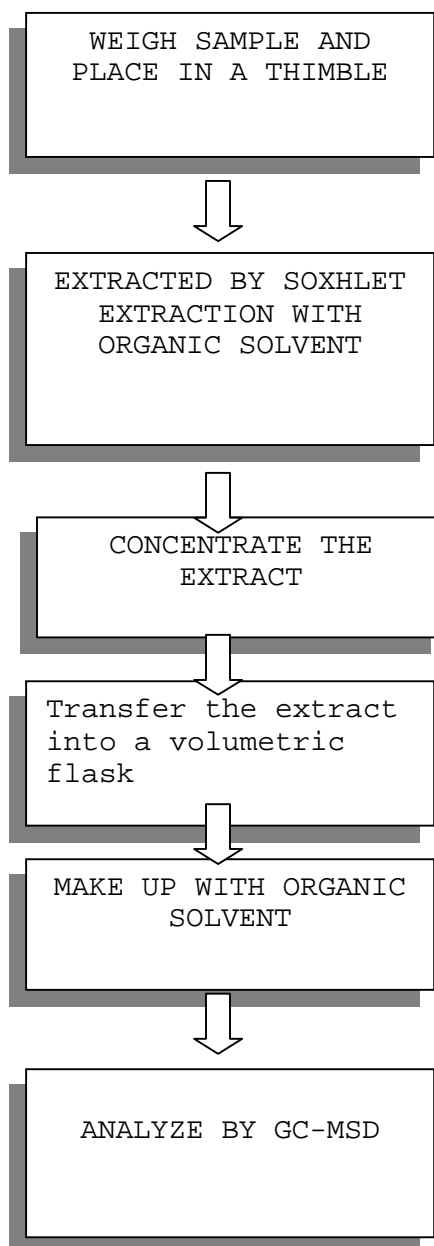
REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT 2008 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

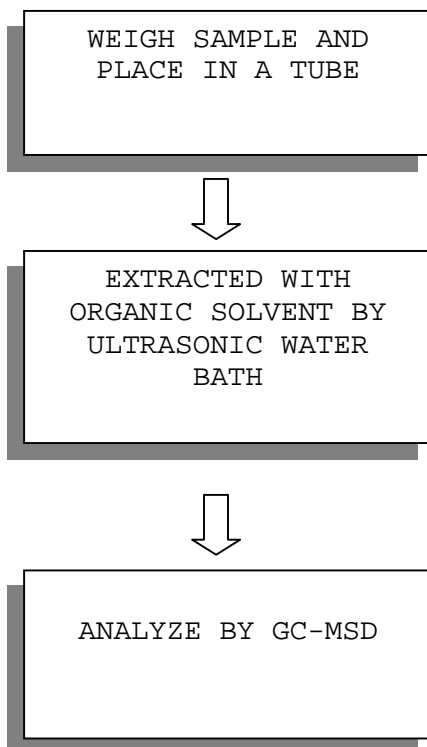
TEST FOR PHTHALATES CONTENTS (EN14372)



TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (CPSC-CH-C1001-09.3)



TO BE CONTINUED

TESTS CONDUCTED



SHAH00345415

END OF REPORT

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TEST REPORT

NUMBER: SH AH00345432

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
AT TN: A.DIVIETRO/D.UNTIEDT

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

ONE (1) SUBMITTED SAMPLE SAID TO BE **BROWN INK.**
PART DESCRIPTION : INK-BROWN.
PART NUMBER : 425906.
DATE SAMPLE RECEIVED : OCTOBER.15, 2012.
DATE TEST STARTED : OCTOBER.15, 2012.

TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr ⁶⁺) content	With reference to IEC 62321 edition 1.0:2008 in annex C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

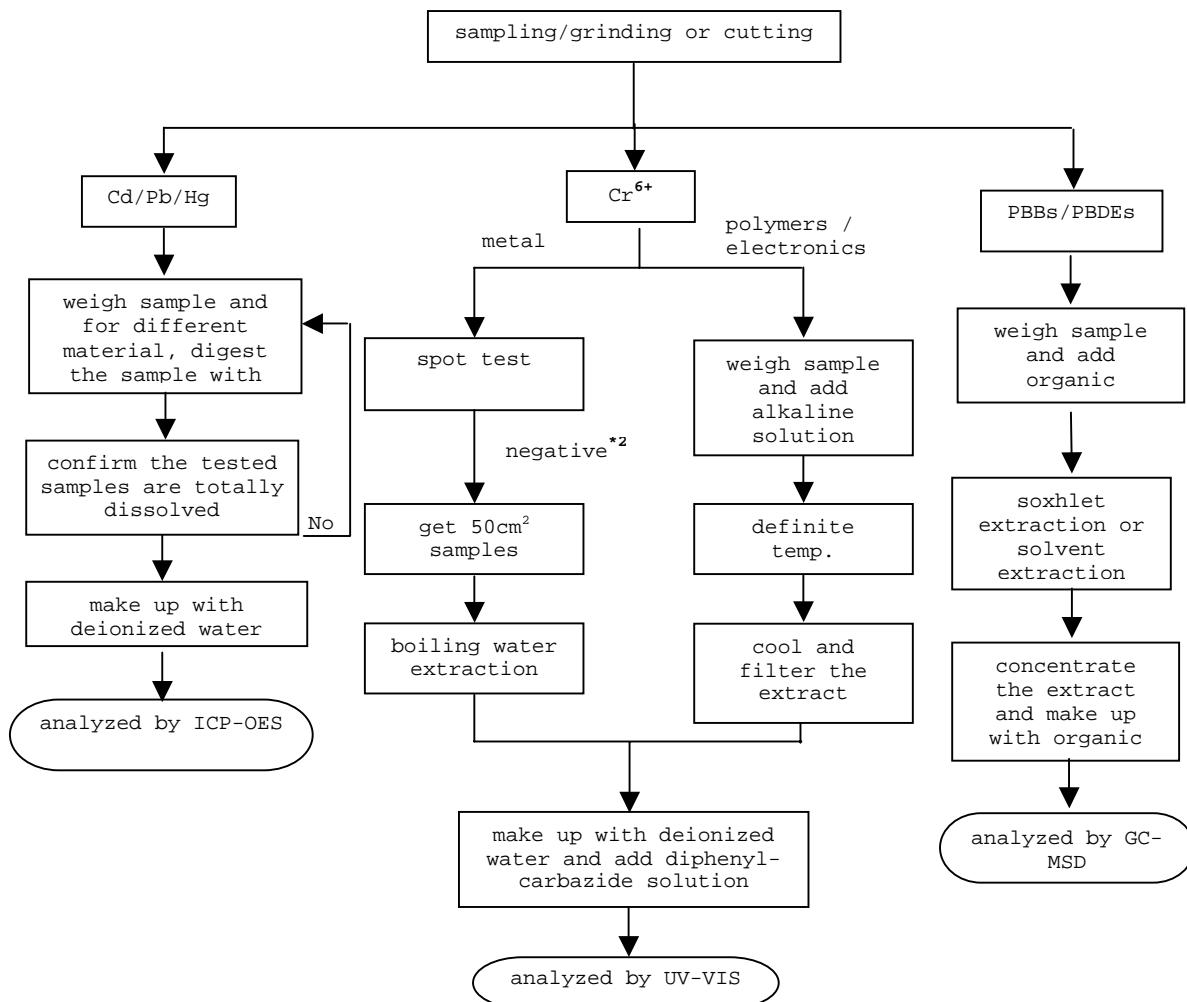
TO BE CONTINUED

TESTS 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 ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ ,HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345432

TESTS CONDUCTED

2 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	8600
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = Parts per million = mg/kg

N D = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

<u>Testing Item</u> T	<u>esting Method</u> R	<u>eporting Limit</u>
Halogen Content	With reference to EN 14582:2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

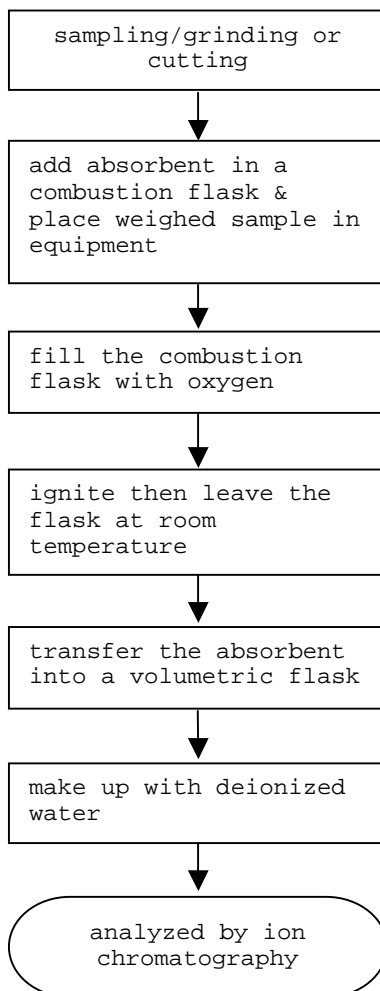
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content

Reference Standard: EN 14582



TO BE CONTINUED

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

<u>TESTING ITEM R</u>	<u>RESULT(ppm)</u>
HBCD (HEXABROMOCYCLODODECANE)	ND

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

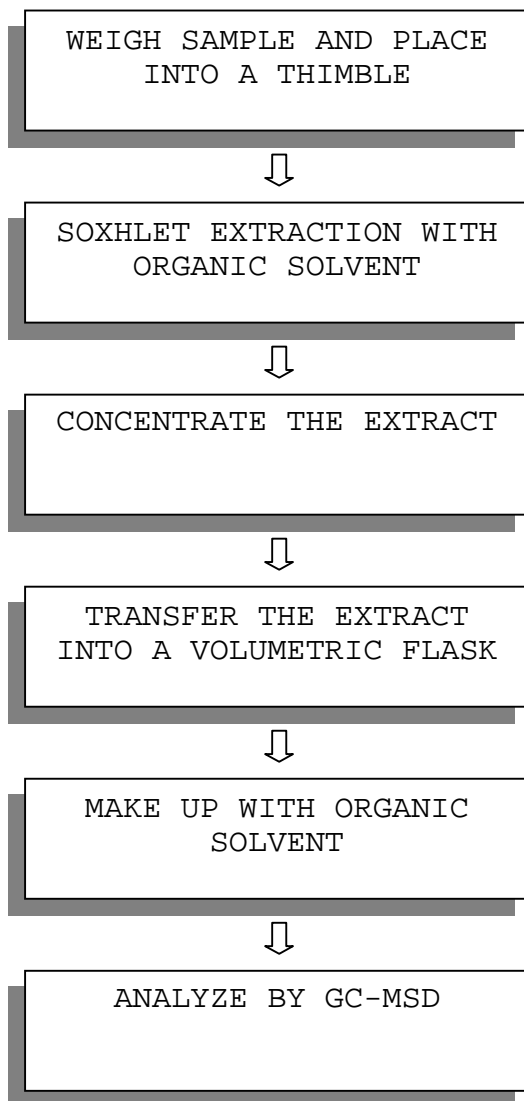
<u>TESTING ITEM T</u>	<u>TESTING METHOD</u>	<u>REPORTING LIMIT</u>
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



TO BE CONTINUED

TESTS CONDUCTED

4 PHthalate Content Test

WITH REFERENCE TO EN14372, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND RESULT</u>	<u>(%,W/W)</u>	<u>LIMIT(%,W/W)</u> <u>(MAX.)</u>
DIBUTYL PHTHALATE (DBP)	ND	---
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	---
BENZYL BUTYL PHTHALATE (BBP)	ND	---
SUM OF THREE PHTHALATES	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO ANNEX XVII ITEMS 51 & 52 OF THE REACH REGULATION (EC) NO. 1907/2006 & AMENDMENT NO.552/2009 (FORMERLY KNOWN AS DIRECTIVE 2005/84/EC) FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

5 PHthalate Content Test

WITH REFERENCE TO CPSC-CH-C1001-09.3, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND RESULT</u>	<u>(%,W/W)</u>	<u>LIMIT(%,W/W)</u> <u>(MAX.)</u>
DI-BUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT 2008 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

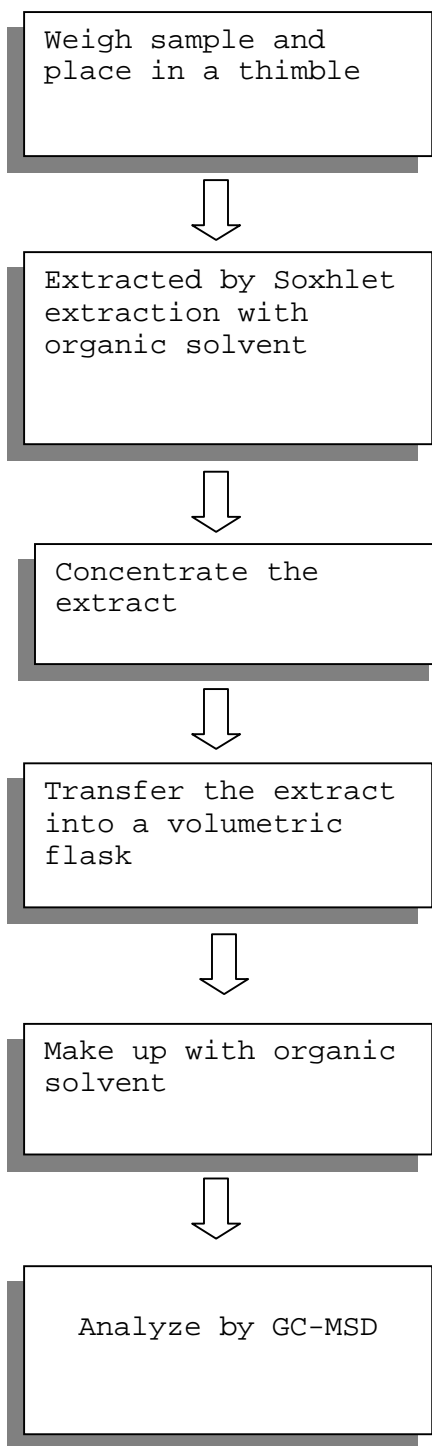
DATE SAMPLE RECEIVED: OCT.15, 2012

TESTING PERIOD: OCT.15, 2012 TO OCT.23, 2012

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

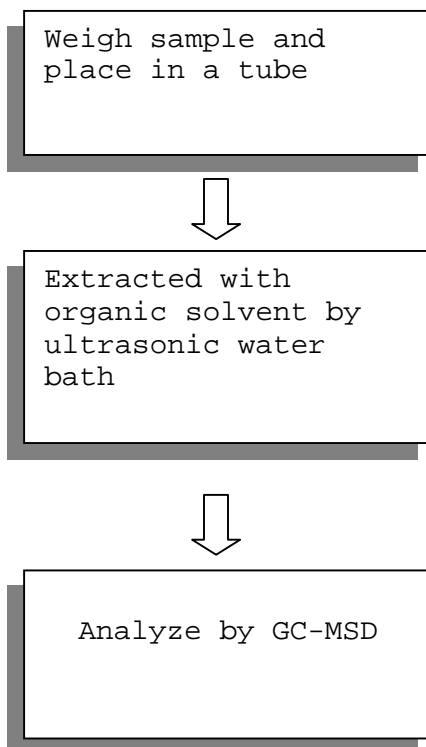
TEST FOR PHTHALATES CONTENTS (EN14372)



TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (CPSC-CH-C1001-09.3)



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345639

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATT N: A.DIVIETRO/D.UNTIEDT

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

ONE (1) SUBMITTED SAMPLE SAID TO BE **GREEN INK.**
PART DESCRIPTION : INK-GREEN.
PART NUMBER : 425907.
DATE SAMPLE RECEIVED : OCTOBER.15, 2012.
DATE TEST STARTED : OCTOBER.15, 2012.

TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr ⁶⁺) content	With reference to IEC 62321 edition 1.0:2008 in annex C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

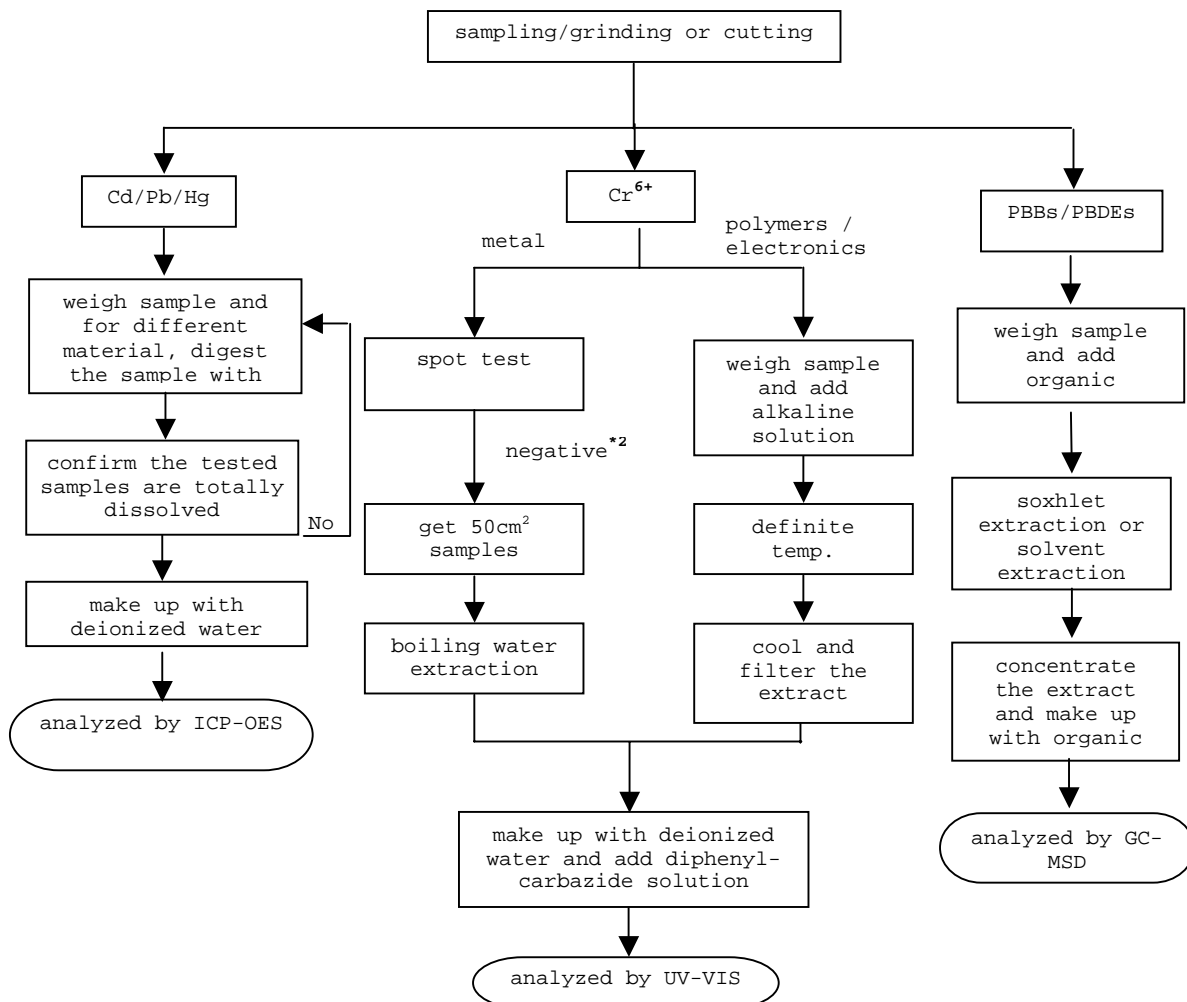
TO BE CONTINUED

TESTS 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 ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345639

TESTS CONDUCTED

2 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
Halogen Content	
Fluorine (F)	200
Chlorine (Cl)	650
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

<u>Testing Item</u> T	<u>Testing Method</u> R	<u>Reporting Limit</u>
Halogen Content	With reference to EN 14582:2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED**Intertek Testing Services Ltd., Shanghai**

Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233

上海天祥質量技術服務有限公司

上海市宜山路 801 號金陵商務廣場 B 座 200233

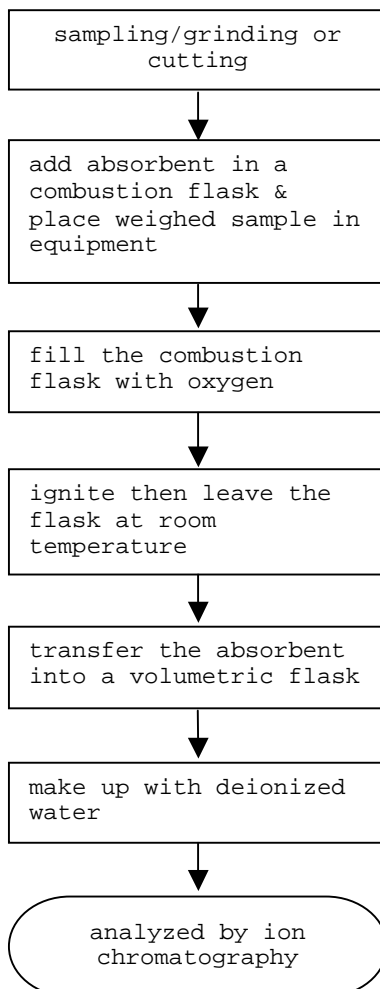
Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740

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

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345639

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

TESTING ITEM R	RESULT(ppm)
HBCD (HEXABROMOCYCLODODECANE)	ND

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

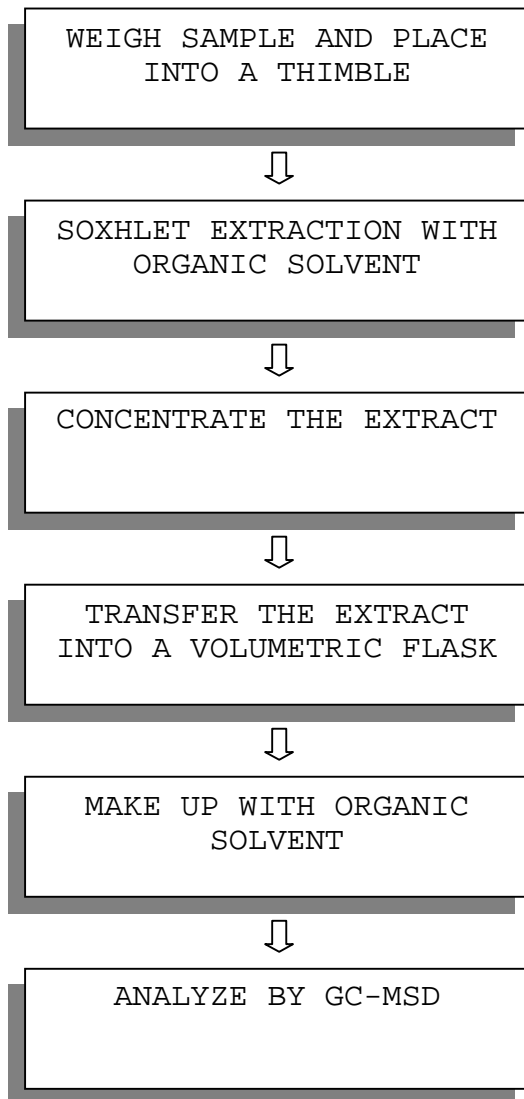
TESTING ITEM TE	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SH AH00345639

TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

WITH REFERENCE TO EN14372, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND R</u>	<u>ESULT (%.W/W)</u>	<u>LIMIT(%W/W)</u> <u>(MAX.)</u>
DIBUTYL PHTHALATE (DBP)	ND	---
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	---
BENZYL BUTYL PHTHALATE (BBP)	ND	---
SUM OF THREE PHTHALATES	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO ANNEX XVII ITEMS 51 & 52 OF THE REACH REGULATION (EC) NO. 1907/2006 & AMENDMENT NO.552/2009 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

5 PHT HALATE CONTENT TEST

WITH REFERENCE TO CPSC-CH-C1001-09.3, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND R</u>	<u>ESULT (%.W/W)</u>	<u>LIMIT(%W/W)</u> <u>(MAX.)</u>
DI-BUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT 2008 & AMENDMENT H.R.2715 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

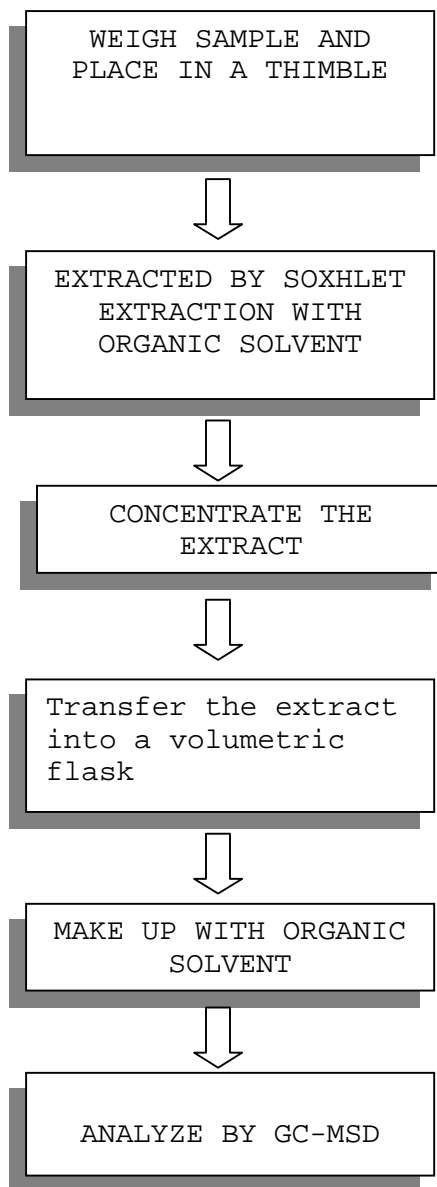
DATE SAMPLE RECEIVED : OCT.15, 2012
TESTING PERIOD : OCT.15, 2012 TO OCT.18, 2012

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)

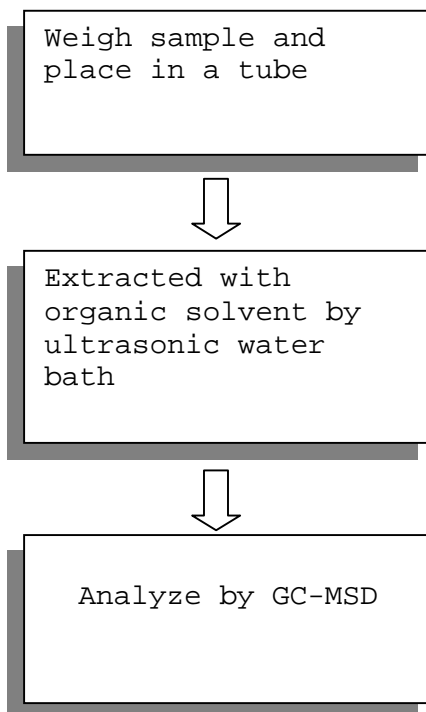


TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (CPSC-CH-C1001-09.3)



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345659

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
AT TN: A.DIVIETRO/D.UNTIEDT

DATE: OCT 26, 2012

SAMPLE DESCRIPTION:

ONE (1) SUBMITTED SAMPLE SAID TO BE: **GREY INK.**
PART DESCRIPTION : INK-GREY.
PART NUMBER : 425909.
DATE SAMPLE RECEIVED : OCTOBER.15, 2012.
DATE TEST STARTED : OCTOBER.15, 2012.

TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED
1 (I) Test Result Summary :

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

(III) Test Method:

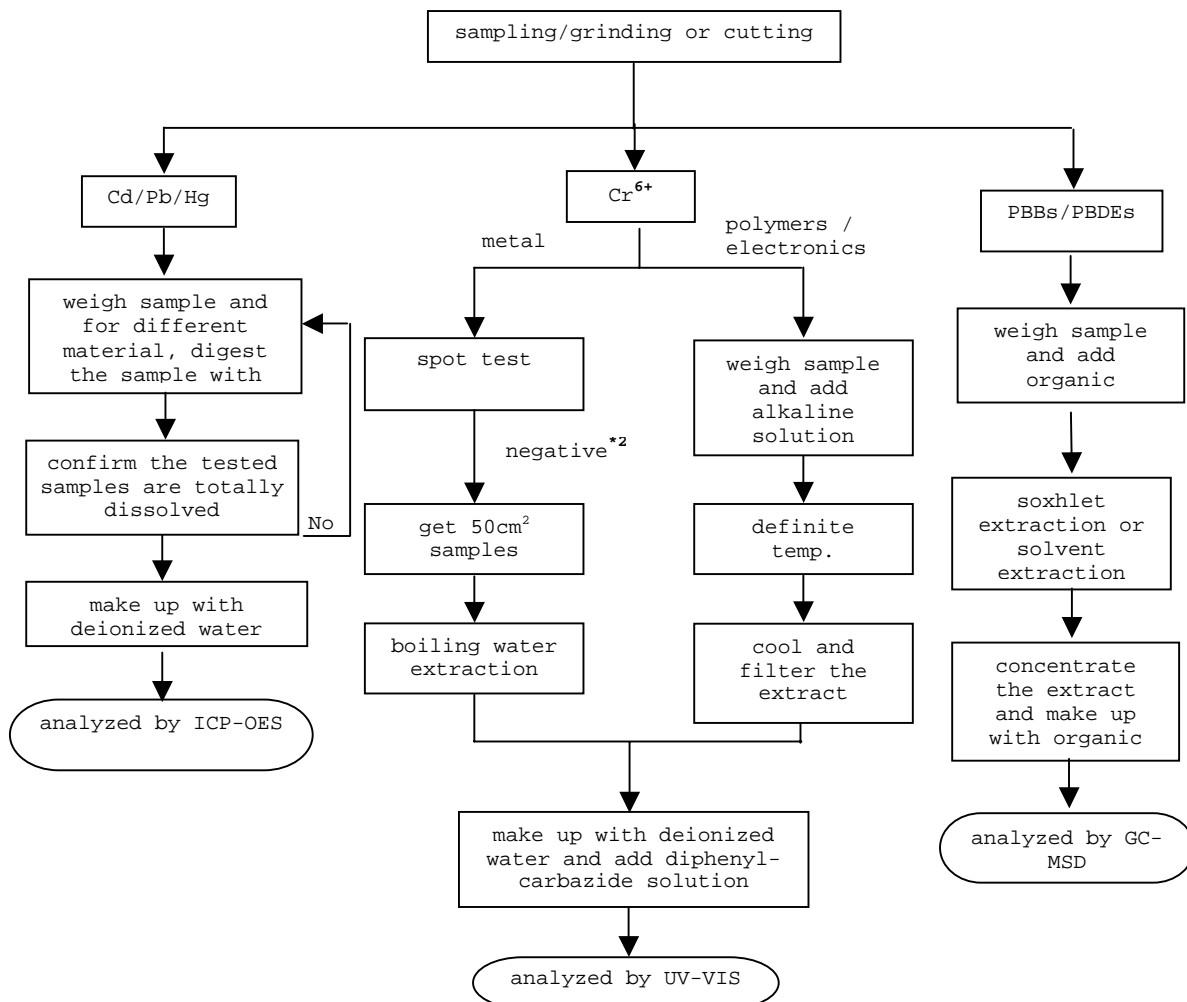
Testing Item T	Testing Method R	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr ⁶⁺) content	With reference to IEC 62321 edition 1.0:2008 in annex C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS 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 ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345659

TESTS CONDUCTED

2 (I) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
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

N D = Not detected

Responsibility Of Chemist : Ken He

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Halogen Content	With reference to EN 14582:2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

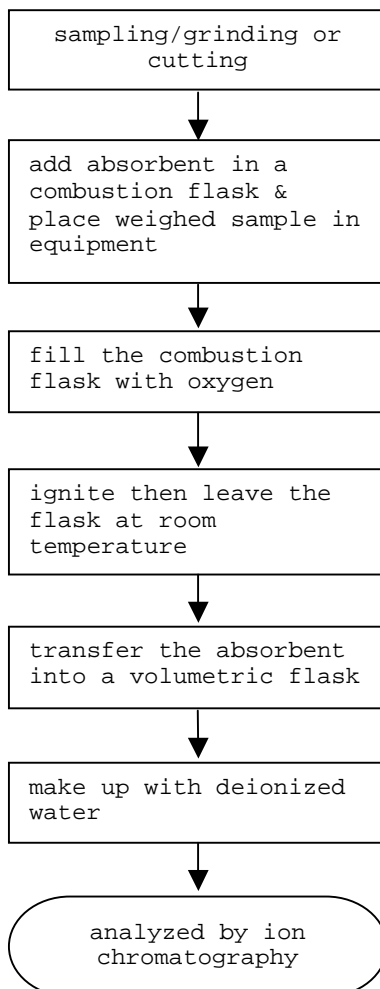
Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345659

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

TESTING ITEM R	RESULT(ppm)
HBCD (HEXABROMOCYCLODODECANE)	ND

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

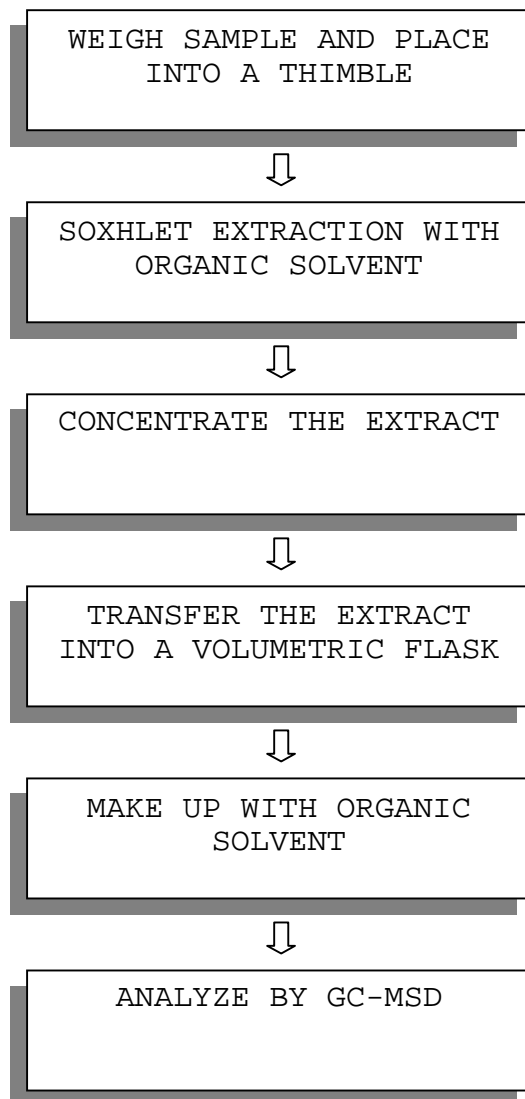
(B) TEST METHOD :

TESTING ITEM T	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



TO BE CONTINUED

TESTS CONDUCTED

4 PHTHALATE CONTENT TEST

WITH REFERENCE TO EN14372, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND</u> RESULT	<u>(%,W/W)</u>	<u>LIMIT(%,W/W)</u> <u>(MAX.)</u>
DIBUTYL PHTHALATE (DBP)	ND	---
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	---
BENZYL BUTYL PHTHALATE (BBP)	ND	---
SUM OF THREE PHTHALATES	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO ANNEX XVII ITEMS 51 & 52 OF THE REACH REGULATION (EC) NO. 1907/2006 & AMENDMENT NO.552/2009 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

5 PHTHALATE CONTENT TEST

WITH REFERENCE TO CPSC-CH-C1001-09.3, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND</u> RESULT	<u>(%,W/W)</u>	<u>LIMIT(%,W/W)</u> <u>(MAX.)</u>
DI-BUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

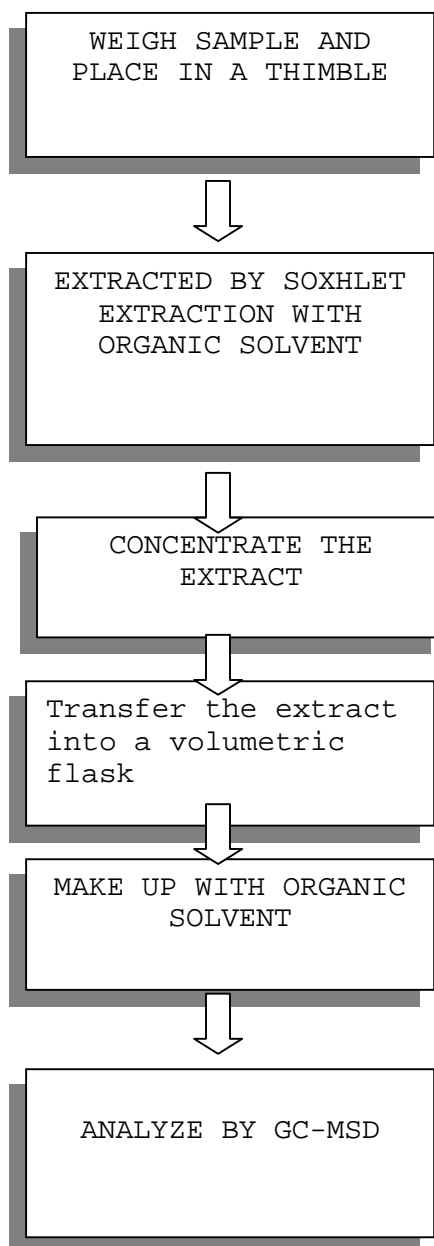
REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT 2008 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

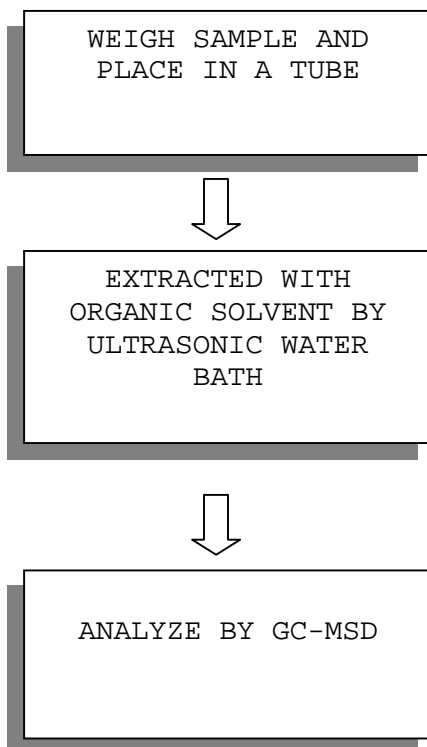
TEST FOR PHTHALATES CONTENTS (EN14372)



TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (CPSC-CH-C1001-09.3)



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345657

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATT N: A.DIVIETRO/D.UNTIEDT

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

ONE (1) SUBMITTED SAMPLE SAID TO BE **PALE BLUE INK.**
PART DESCRIPTION : INK-PALE BLUE.
PART NUMBER : 425913.
DATE SAMPLE RECEIVED : OCTOBER.15, 2012.
DATE TEST STARTED : OCTOBER.15, 2012.

TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr ⁶⁺) content	With reference to IEC 62321 edition 1.0:2008 in annex C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary.	5 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

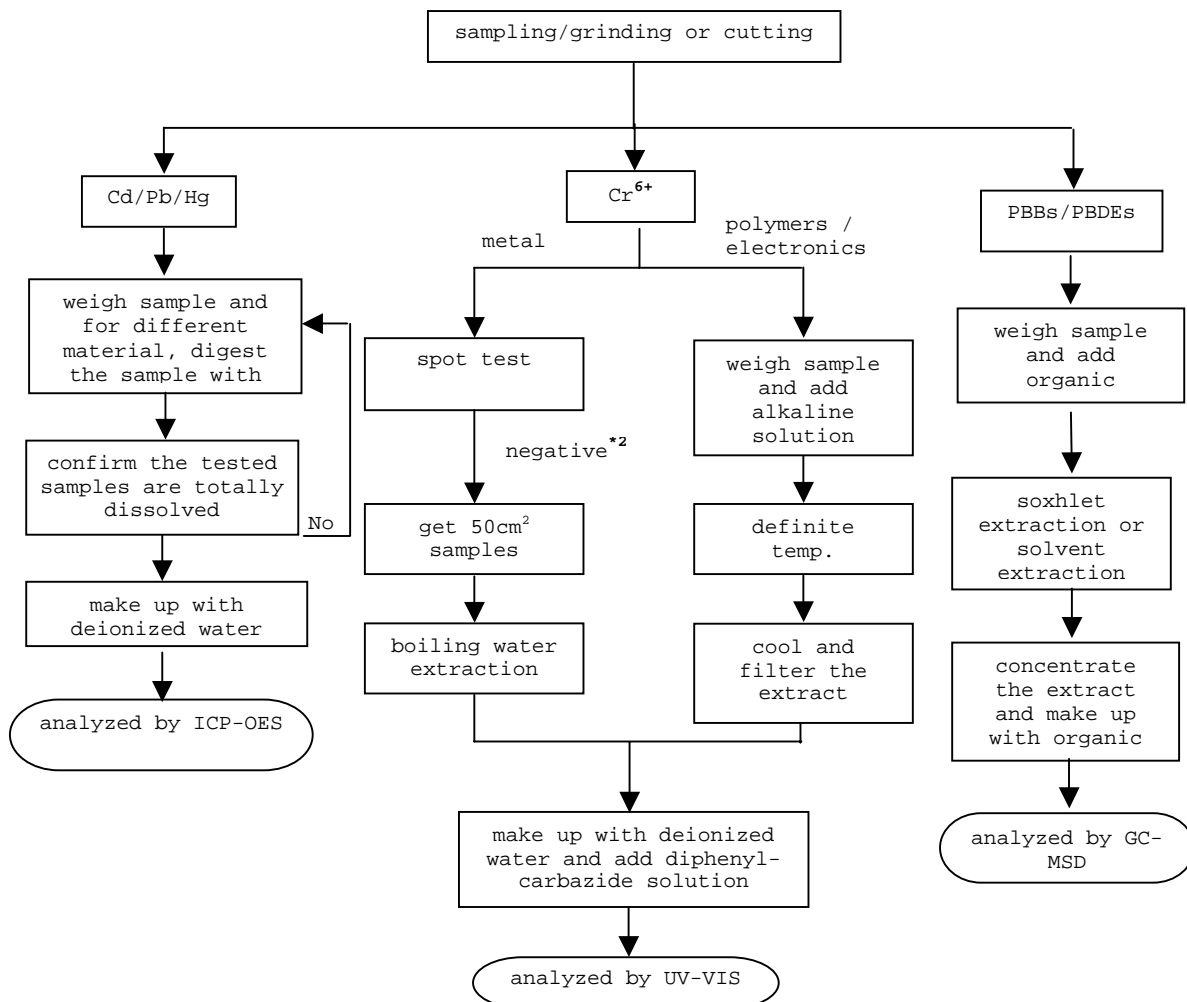
TO BE CONTINUED

TESTS 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 ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345657

TESTS CONDUCTED

2 (I) Test Result Summary :

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

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

Testing Item T	Testing Method R	Reporting Limit
Halogen Content	With reference to EN 14582:2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED**Intertek Testing Services Ltd., Shanghai**

Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233

上海天祥質量技術服務有限公司

上海市宜山路 801 號金陵商務廣場 B 座 200233

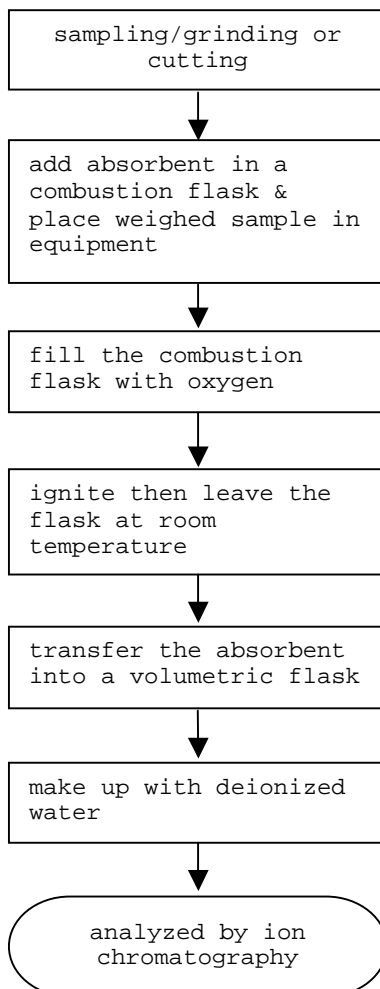
Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740

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

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345657

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

TESTING ITEM R	RESULT(ppm)
HBCD (HEXABROMOCYCLODODECANE)	ND

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

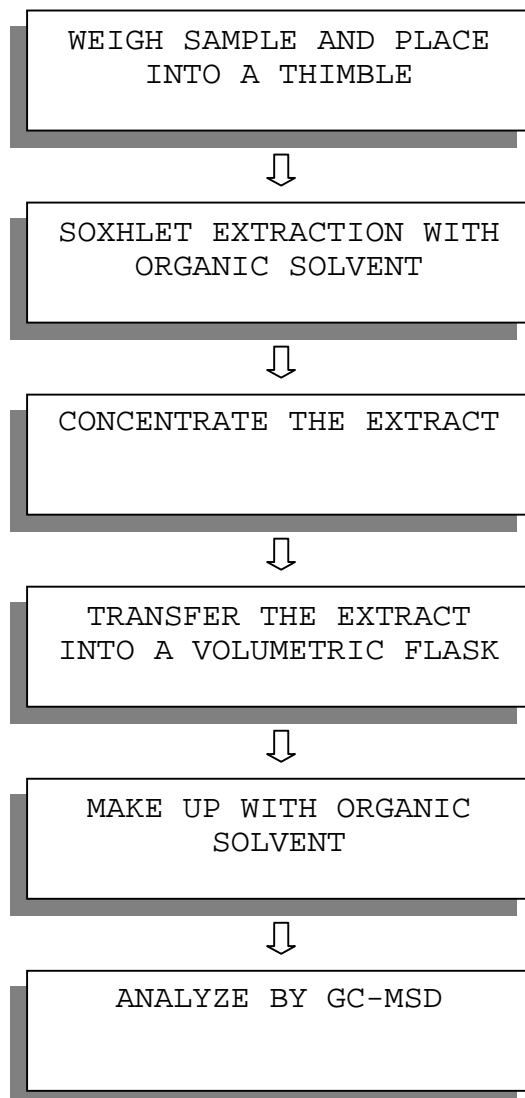
TESTING ITEM TE	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT

*****
TO BE CONTINUED

TEST REPORT

NUMBER: SH AH00345657

TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

WITH REFERENCE TO EN14372, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND R</u>	<u>ESULT (%W/W)</u>	<u>LIMIT(%W/W)</u> <u>(MAX.)</u>
DIBUTYL PHTHALATE (DBP)	ND	---
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	---
BENZYL BUTYL PHTHALATE (BBP)	ND	---
SUM OF THREE PHTHALATES	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO ANNEX XVII ITEMS 51 & 52 OF THE REACH REGULATION (EC) NO. 1907/2006 & AMENDMENT NO.552/2009 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

5 PHT HALATE CONTENT TEST

WITH REFERENCE TO CPSC-CH-C1001-09.3, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

<u>TESTED COMPOUND R</u>	<u>ESULT (%W/W)</u>	<u>LIMIT(%W/W)</u> <u>(MAX.)</u>
DI-BUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE(DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT 2008 & AMENDMENT H.R.2715 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

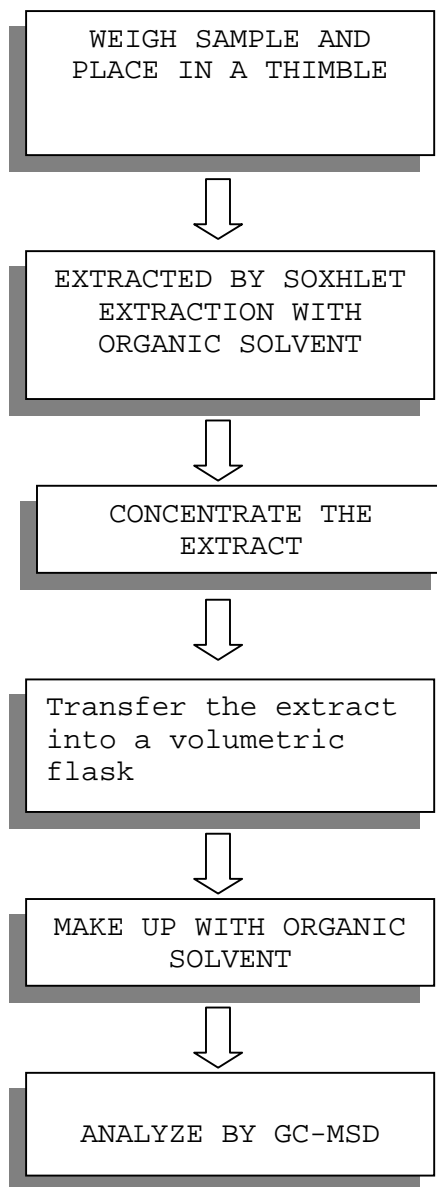
DATE SAMPLE RECEIVED : OCT.15, 2012
TESTING PERIOD : OCT.15, 2012 TO OCT.19, 2012

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)

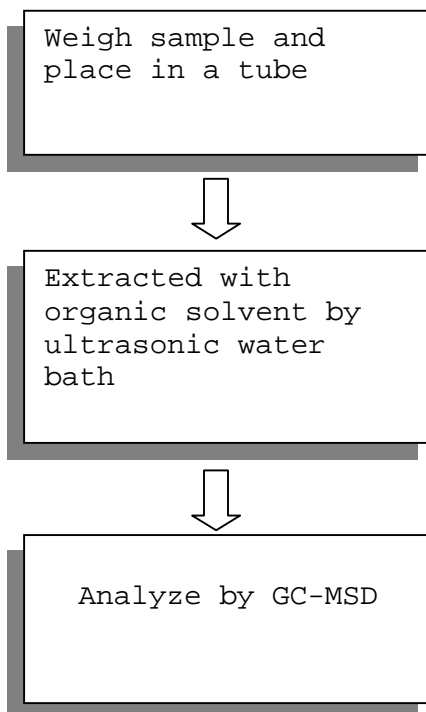


TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (CPSC-CH-C1001-09.3)



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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