



ICP Test Report Certification Packet

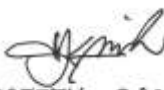
Company name: Littelfuse, Inc.

Product Series: 5x20 Cartridge Fuse

Product #: 219XA Series

Issue Date: June 27, 2012

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

Issued by: 
KRISTEEN BACILA

< Global EHS Engineer >

(1) Parts, sub-materials and unit parts

This document covers the 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	C909542/C909543	Body	7-11
3	11-0595 (082xxx-001)	Element – 99% Sn Plated Cu	12-18
4	687xxx-001	Element - Sn Plated Ag Cu	19-28
5	YTW102 (692535-002)	Solder Wire	29-33
6	934-077/C030208	Overcap (Cap base and plating) Overcap (Wire base and plating)	34-37
7	648901	Yarn	38-46
8	648115	Yarn	47-55
9	648150	Yarn	56-64
10	425900	Ink-Orange	65-79
11	425901	Ink-Red	80-94
12	425902	Ink-Black	95-109
13	425904	Ink-Blue	110-123
14	425906	Ink-Brown	124-138
15	425907	Ink-Green	139-153
16	425909	Ink-Grey	154-168



TEST REPORT

NO.: A002E11121307-1R02

Date: Dec.15, 2011

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: /

Description: /

Buyer: /

Supplier: /

Manufacturer: /

Sample received date: Dec.13,2011

Testing period: From Dec.13,2011 to Dec.15,2011

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)*****

Project Leader
(Engineer)

Maggie

Approved by
(Lab manager)

Wickay

Inspected by
(Technical manager)

Wei kin

SHENZHEN AOV TESTING TECHNOLOGY CO.,LTD.KUNSHAN BRANCH

No.8,Minguan Road North,Zhoushi,Kunshan,Jiangsu,China

Fax : 86-512-5510 8808 Http: //www.aovt.com

(Attention is drawn to the terms and conditions printed overleaf)



Hotline
86-512-5510 8000

TEST REPORT

NO.: A002E11121307-1R02

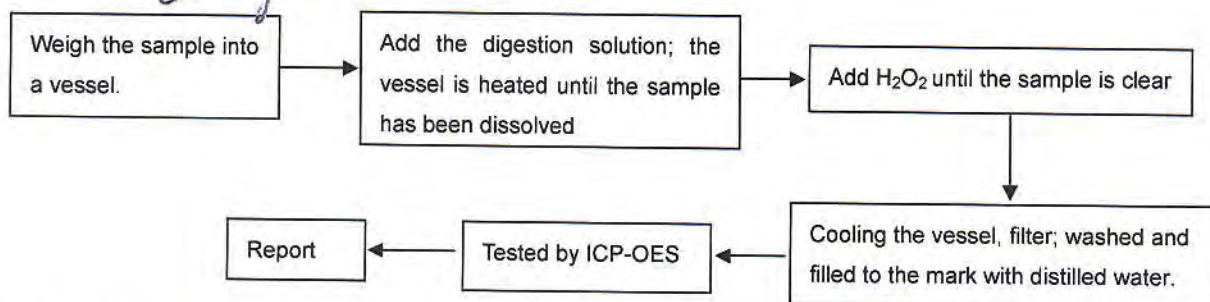
Date: Dec.15, 2011

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Test Flow:

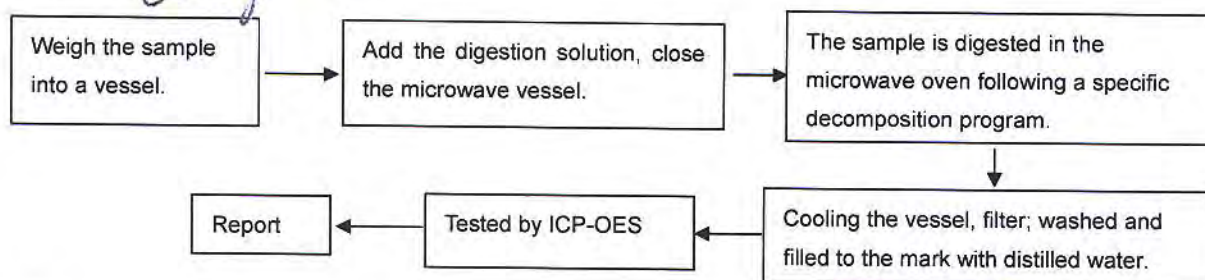
1. To Determine Lead, Cadmium Content: (Metal substrate)

Tested by: *Condy*



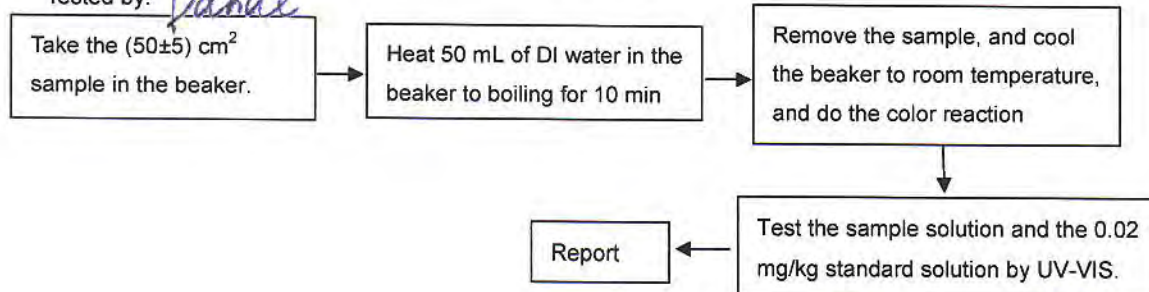
2. To Determine Mercury Content: (Metal substrate)

Tested by: *Condy*



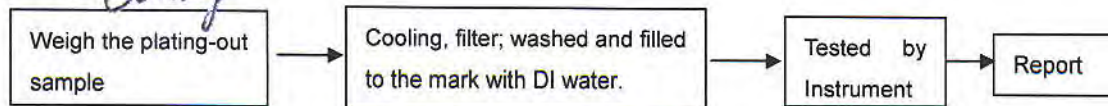
3. To Determine Hexavalent Chromium Content (boiling- water- extraction): (Metal substrate)

Tested by: *Danale*



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

Tested by: *Condy*



TEST REPORT

NO.: A002E11121307-1R02

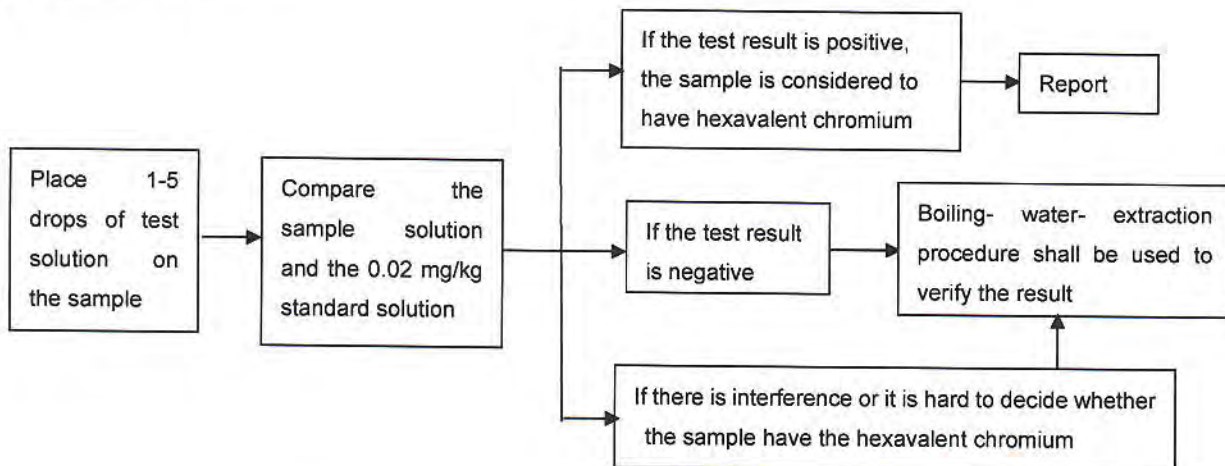
Date: Dec.15, 2011

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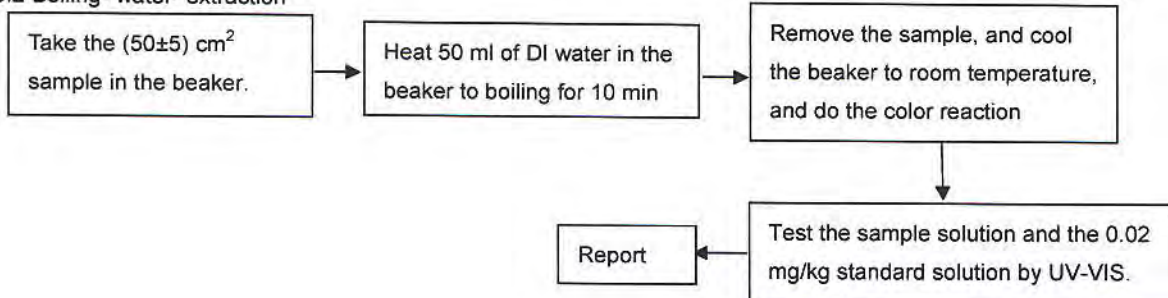
5. To Determine Hexavalent Chromium Content in colorless and colored chromate coating on metals: (Plating)

Tested by: *Danale*

5.1 Spot-test



5.2 Boiling- water- extraction



Test Results:

Item	Unit	RoHS Limit	Result	
			Substrate	Plating*
Lead (Pb)	mg/kg	1000	N.D.	N.D.
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

TEST REPORT

NO.: A002E11121307-1R02

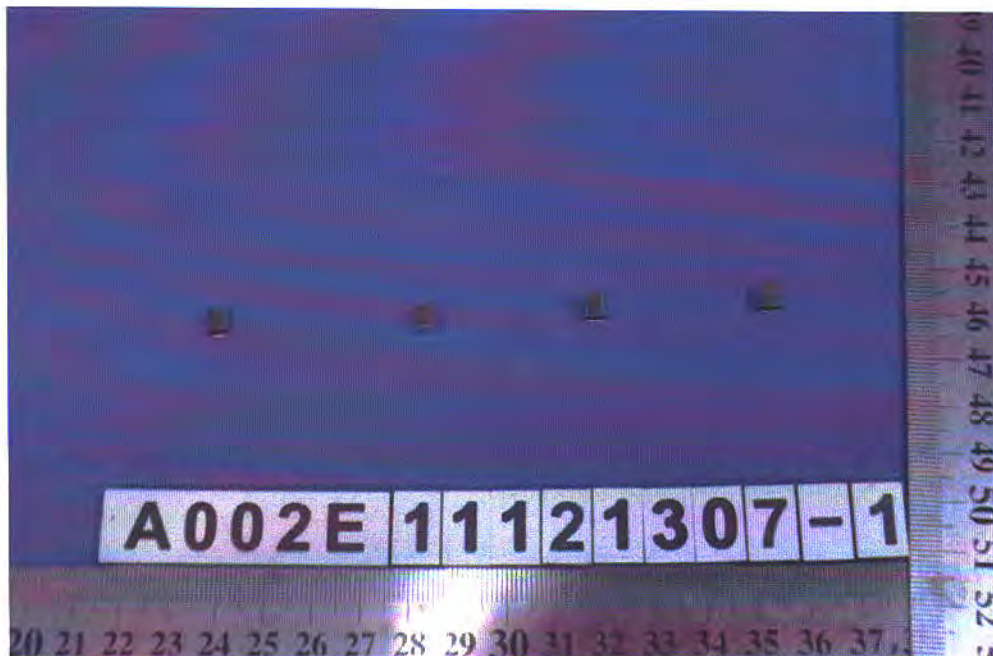
Date: Dec.15, 2011

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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. CANEC1207912202

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 : BOSI GLASS TUBE

SGS Job No. : XM13901119EC - XM

Date of Sample Received : 18 Jun 2012

Testing Period : 18 Jun 2012 - 26 Jun 2012

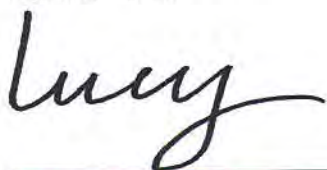
Test Requested : Selected test(s) as requested by client.

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

No. CANEC1207912202

Date: 26 Jun 2012

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	CAN12-079122.002	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	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (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>002</u>
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

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

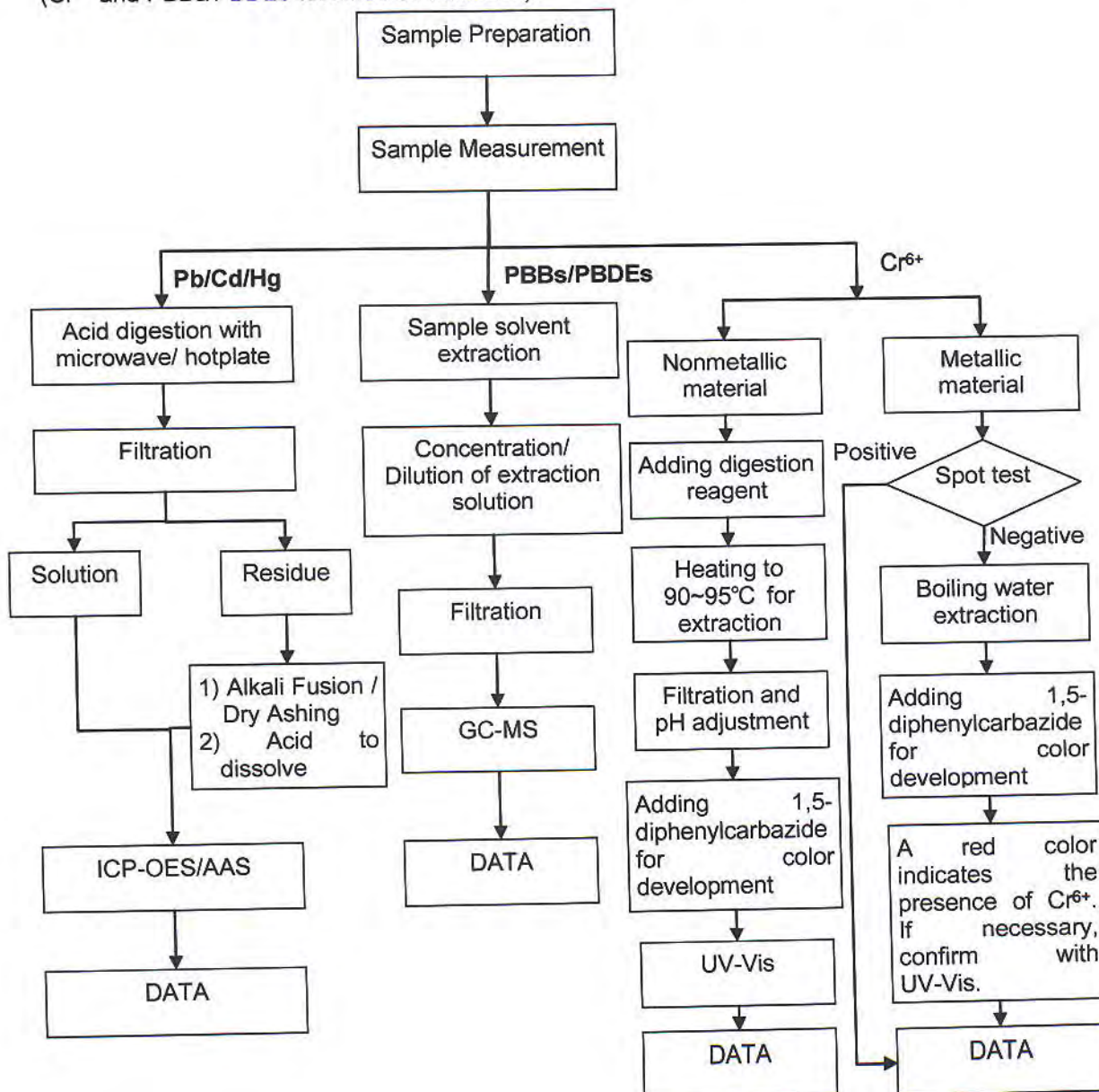
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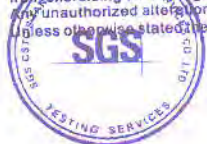
ATTACHMENTS

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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Date: 26 Jun 2012

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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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Member of the SGS Group (SGS SA)

Test Report

No. : CE/2011/B4950

Date : 2011/12/01

Page: 1 of 7

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



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

Sample Description : Cu99.9MSn
Buyer/Order No. : 11-0595
Sample Receiving Date : 2011/11/25
Testing Period : 2011/11/25 TO 2011/12/01

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


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

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SGS Taiwan Ltd.
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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 + 886 (02) 2299 3279 f + 886 (02) 2299 3237 www.sgs.com

Test Report

No. : CE/2011/B4950

Date : 2011/12/01

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



Test Result(s)

PART NAME No.1 : SILVER COLORED METAL WIRE (INCLUDING THE PLATING LAYER)

Test Item(s)	Unit	Method	MDL	Result No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg		2	24
Mercury (Hg)	mg/kg		2	n.d.
Hexavalent Chromium Cr(VI)	**	With reference to IEC 62321: 2008 and performed by Boiling water extraction Method.#	#	Negative
Sum of PBBs	mg/kg	With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
Monobromobiphenyl			5	n.d.
Dibromobiphenyl			5	n.d.
Tribromobiphenyl			5	n.d.
Tetrabromobiphenyl			5	n.d.
Pentabromobiphenyl			5	n.d.
Hexabromobiphenyl			5	n.d.
Heptabromobiphenyl			5	n.d.
Octabromobiphenyl			5	n.d.
Nonabromobiphenyl			5	n.d.
Decabromobiphenyl			5	n.d.
Sum of PBDEs			-	n.d.
Monobromodiphenyl ether			5	n.d.
Dibromodiphenyl ether			5	n.d.
Tribromodiphenyl ether			5	n.d.
Tetrabromodiphenyl ether			5	n.d.
Pentabromodiphenyl ether			5	n.d.
Hexabromodiphenyl ether			5	n.d.
Heptabromodiphenyl ether			5	n.d.
Octabromodiphenyl ether			5	n.d.
Nonabromodiphenyl ether			5	n.d.
Decabromodiphenyl ether			5	n.d.

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Test Report

No. : CE/2011/B4950

Date : 2011/12/01

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



Test Item(s)	Unit	Method	MDL	Result No.1
Halogen				
Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)			50	n.d.
Halogen-Bromine (Br) (CAS No.: 10097-32-2)			50	n.d.
Halogen-Iodine (I) (CAS No.: 14362-44-8)			50	n.d.

Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated
5. ** = Qualitative analysis (No Unit)
6. # = a. Positive means the presence of CrVI on the tested areas
b. Negative means the absence of CrVI on the tested areas
The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² tested areas.
7. The sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value.

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Test Report

No. : CE/2011/B4950

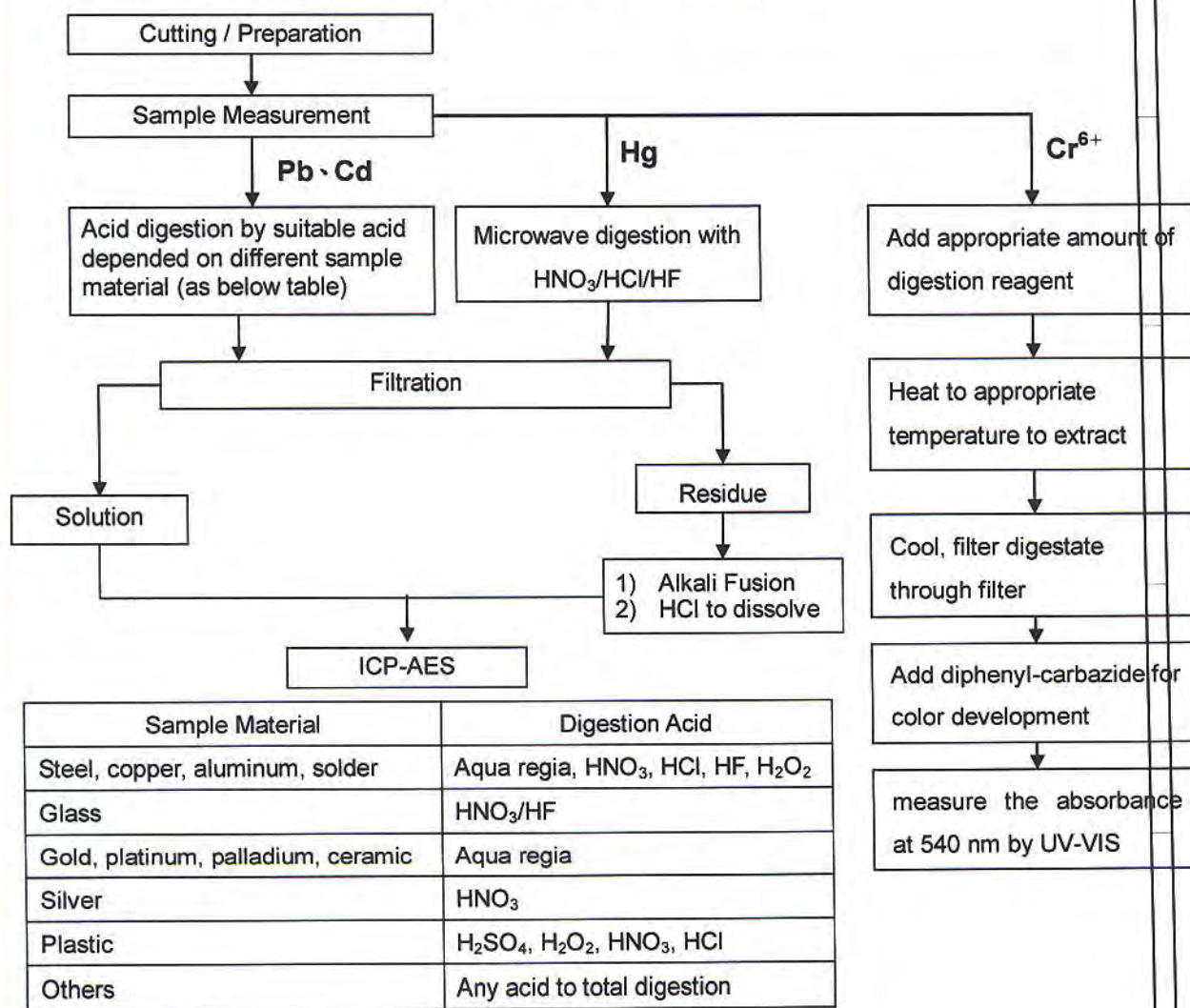
Date : 2011/12/01

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POLYFIL AG

OBERALLMENDSTRASSE 20A, CH-6300 ZUG / SWITZERLAND

- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr⁶⁺ test method excluded)
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



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Test Report

No. : CE/2011/B4950

Date : 2011/12/01

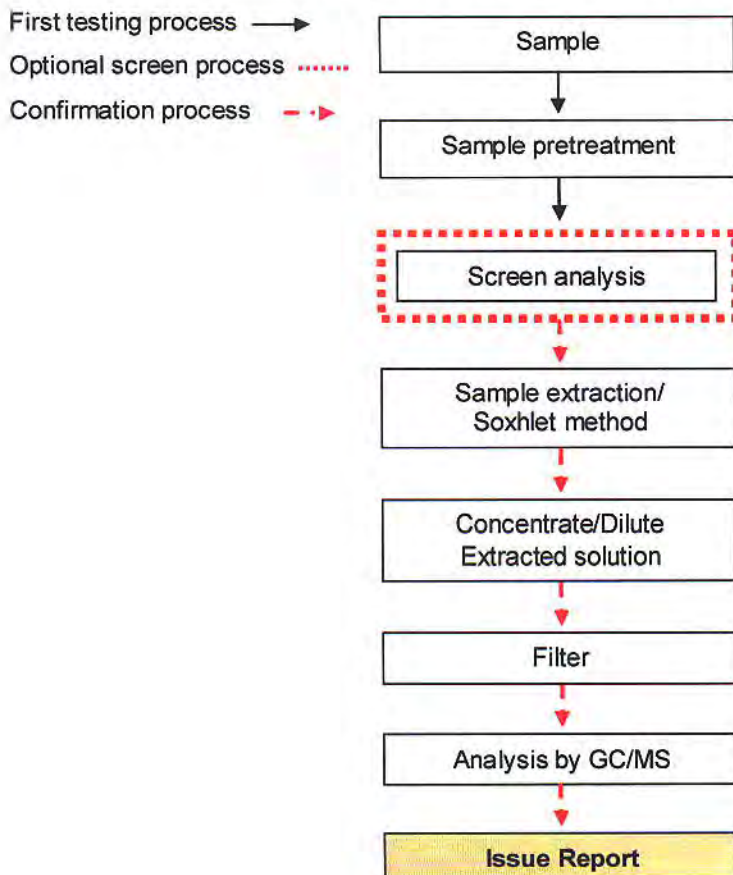
Page: 5 of 7

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



PBB/PBDE analytical FLOW CHART

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



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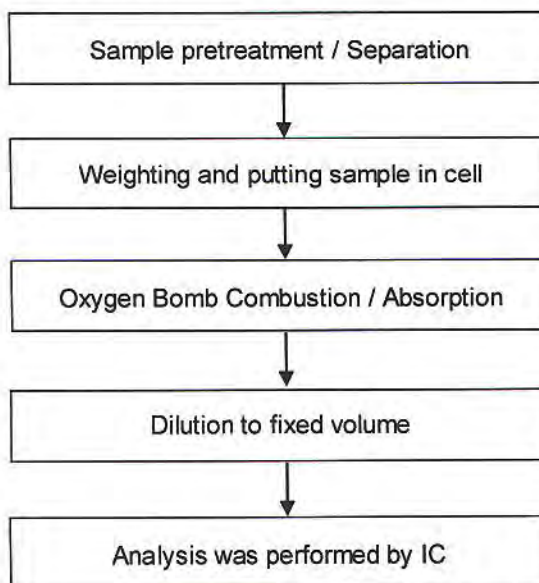
POLYFIL AG

OBERALLMENDSTRASSE 20A, CH-6300 ZUG / SWITZERLAND



Analytical flow chart of halogen content

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



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

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** End of Report **

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測試報告 Test Report

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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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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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GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



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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測試報告

Test Report

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

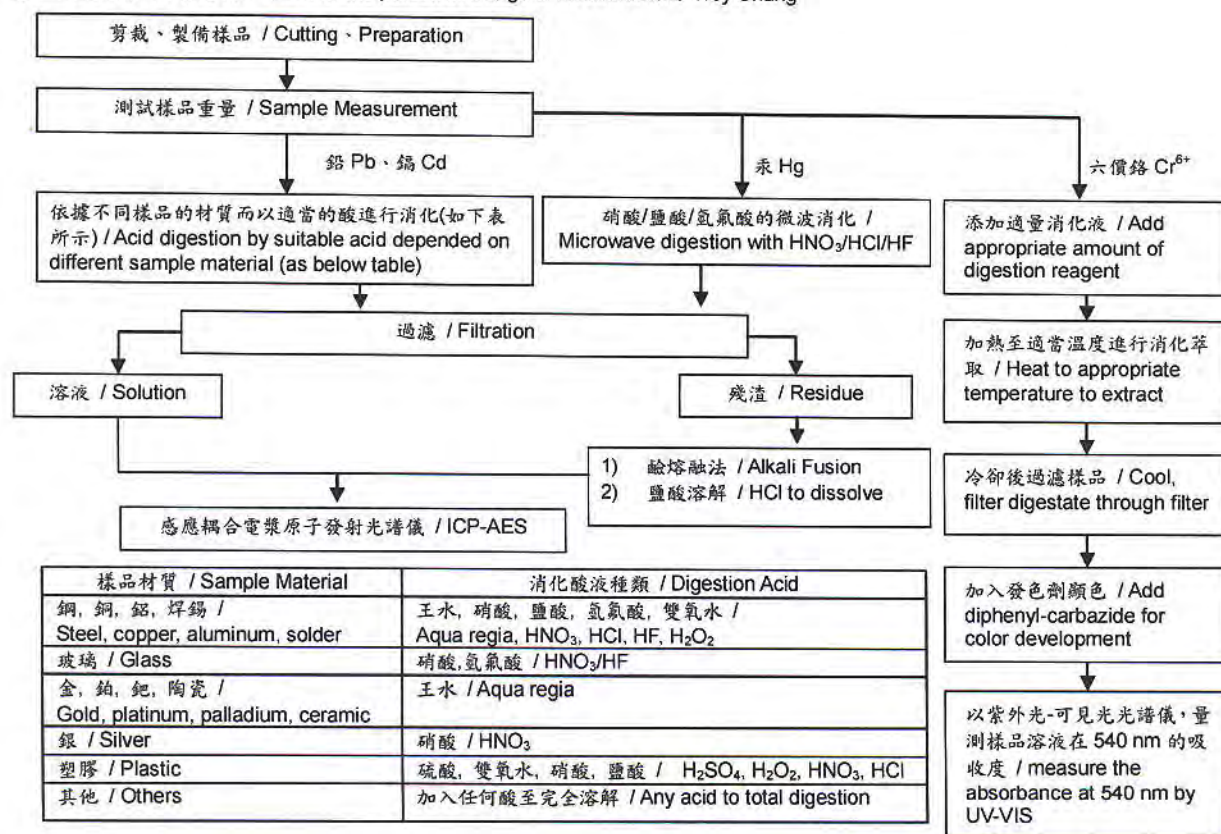
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)
- 2) 測試人員：楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 3) 測試負責人：張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



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



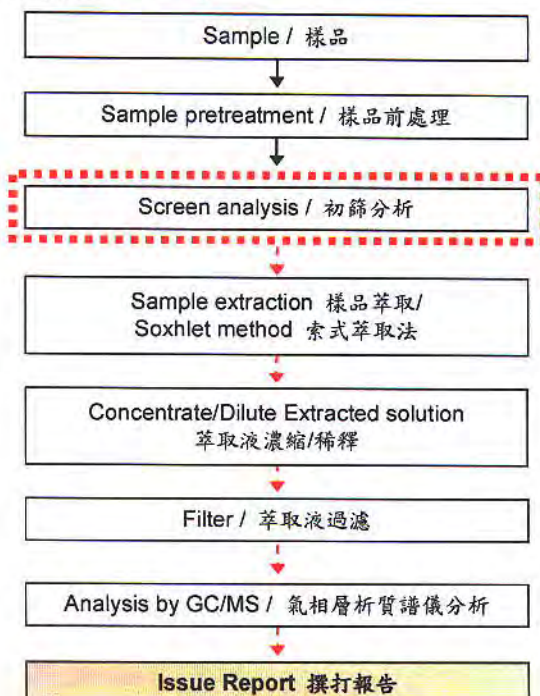
多溴聯苯/多溴聯苯醚分析流程圖 / PBB/PBDE analytical FLOW CHART

- 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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台灣檢驗科技股份有限公司

Chemical-Taipei 33 WuChyuan Road, Wuku Industrial Zone, New Taipei City, Taiwan / 新北市五股區武庫路33號 +886 (02)2299 3270 / +886 (02)2299 3237 www.sgs.com

測試報告 Test Report

號碼(No.) : CE/2012/10835

日期(Date) : 2012/01/11

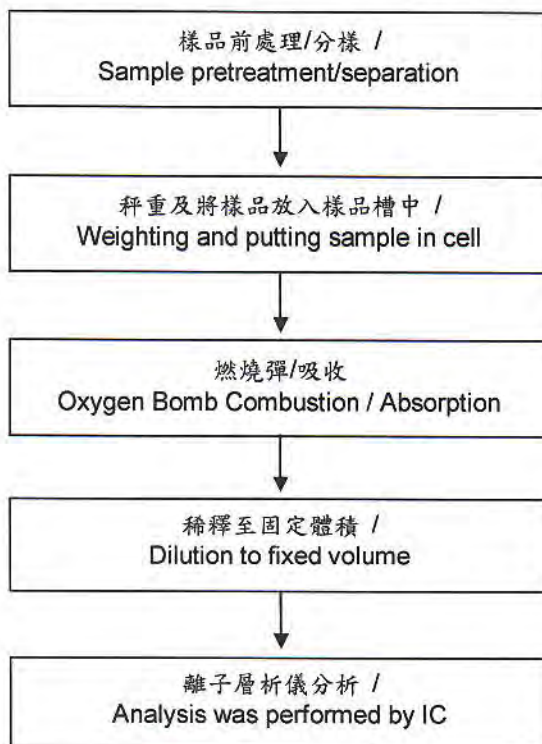
頁數(Page) : 8 of 10

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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測試報告 Test Report

號碼(No.) : CE/2012/10835

日期(Date) : 2012/01/11

頁數(Page) : 9 of 10

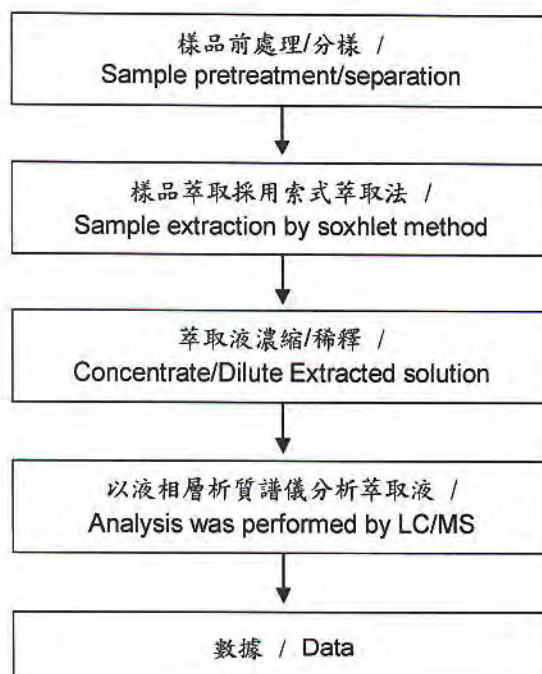
ELSCHUKOM ELEKTROSCHUTZKOMPONENTENBAU GMBH
GEWERBESTRASSE 87, D-98669 VEILSDORF, GERMANY



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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測試報告 Test Report

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

號碼(No.) : CE/2012/10835 日期(Date) : 2012/01/11 頁數(Page) : 10 of 10



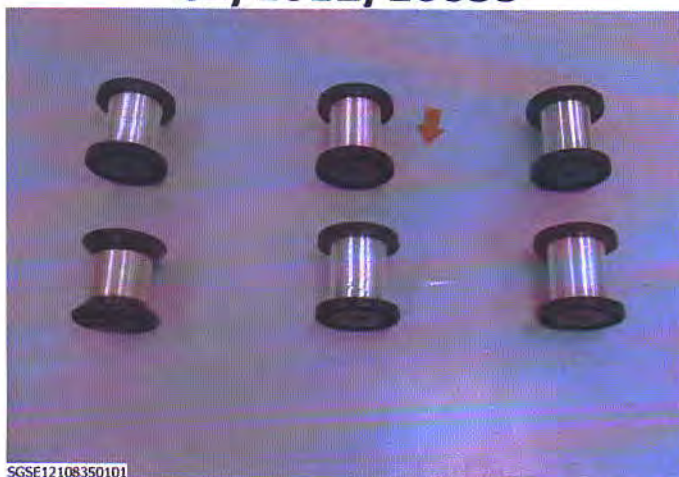
* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。*
(The tested sample / part is marked by an arrow if it's shown on the photo.)

CE/2012/10835



SGSE12108350001

CE/2012/10835



SGSE12108350101

**** 報告結尾(End of Report) ****

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Test Report

No. SHAEC1116009838

Date: 14 Oct 2011

Page 1 of 5

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

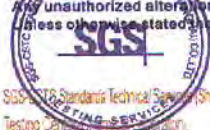
The following sample(s) was/were submitted and identified on behalf of the clients as : LEAD-FREE SOLDER WIRE

SGS Job No. : SP11-030781 - SH
Model No. : YTW102(692535-001,692535-002,692535-003)
Composition : Sn2.0CuRE
Date of Sample Received : 09 Oct 2011
Testing Period : 09 Oct 2011 - 13 Oct 2011
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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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

t E&E (86-21) 61402553 f E&E (86-21) 64953679
HL: (86-21) 61402594 HL: (86-21) 54500353

www.cn.sgs.com
e sgs.china@sgs.com

Test Report

No. SHAEC1116009838

Date: 14 Oct 2011

Page 2 of 5

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA11-160098.033	Silvery metal wire

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

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

Test Item(s)	Limit	Unit	MDL	033
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	167
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	◇	Negative
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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

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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Test Report

No. SHAEC1116009838

Date: 14 Oct 2011

Page 3 of 5

Test Item(s)	Limit	Unit	MDL	033
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 CrVI coating; Positive = Presence of CrVI coating;

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

◇ Boiling-water-extraction:

Negative = Absence of CrVI coating; Positive = Presence of CrVI coating

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

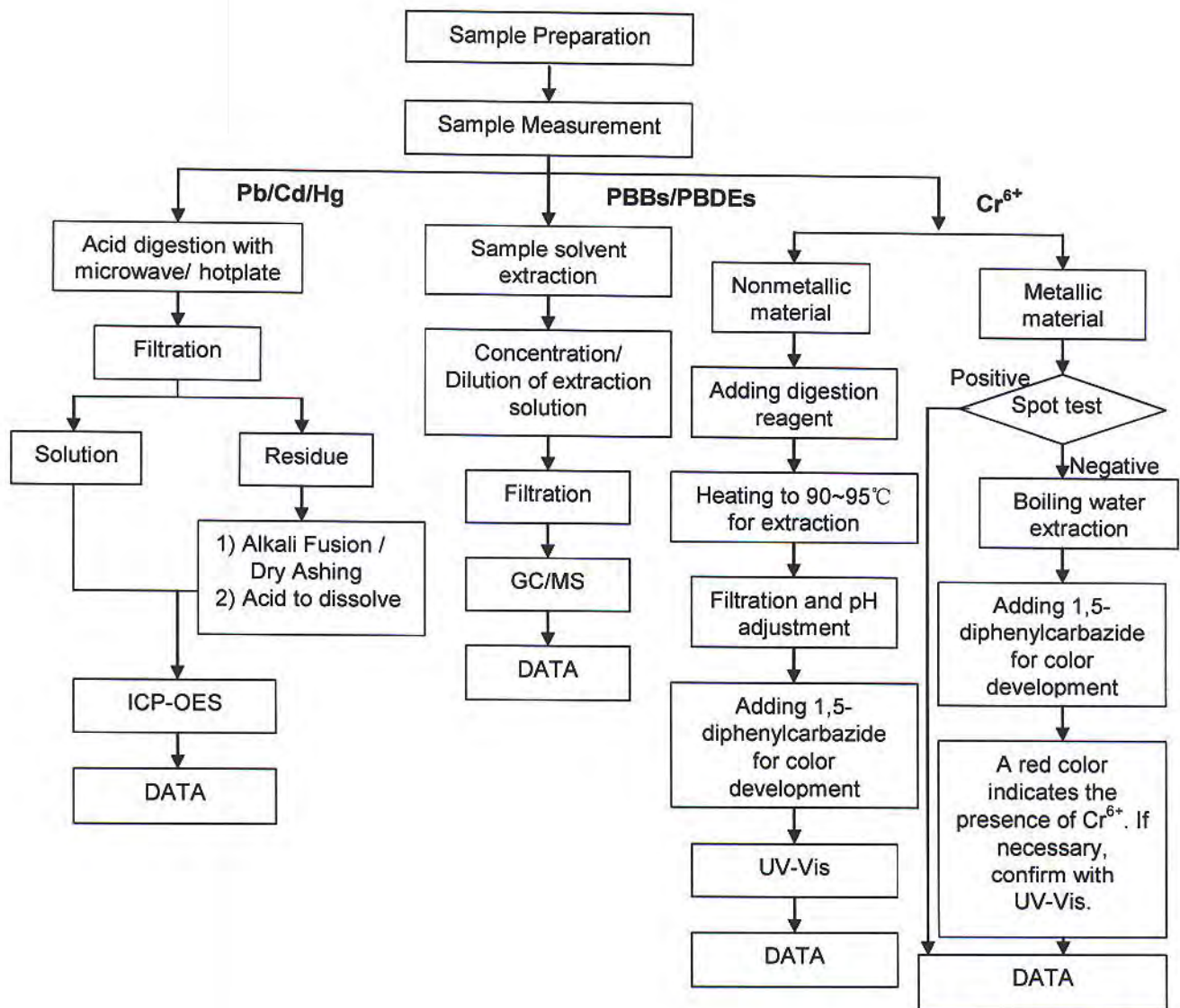
For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing

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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Jan Shi/Yoyo Wang/Allen Xiao/Gary Xu
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/ Elim Lin
- 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. SHAEC1116009838

Date: 14 Oct 2011

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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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TEST REPORT

NO.: A002E11121307-2R02

Date: Dec.15, 2011

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: Fuses copper shell

Model: /

Item/Lot No.: /

Material: /

Description: /

Buyer: /

Supplier: /

Manufacturer: /

Sample received date: Dec.13,2011

Testing period: From Dec.13,2011 to Dec.15,2011

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)*****

Project Leader
(Engineer)

Maggie

Approved by
(Lab manager)

Wickay

Inspected by

(Technical manager)

Weikin



TEST REPORT

NO.: A002E11121307-2R02

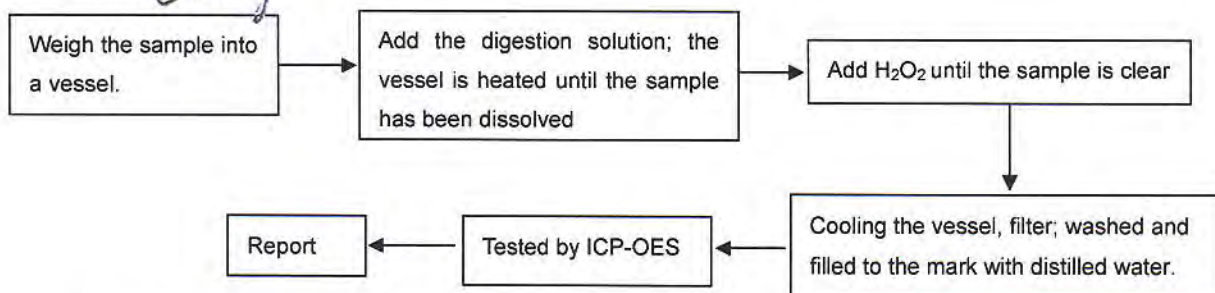
Date: Dec.15, 2011

Page 2 of 4

Test Flow:

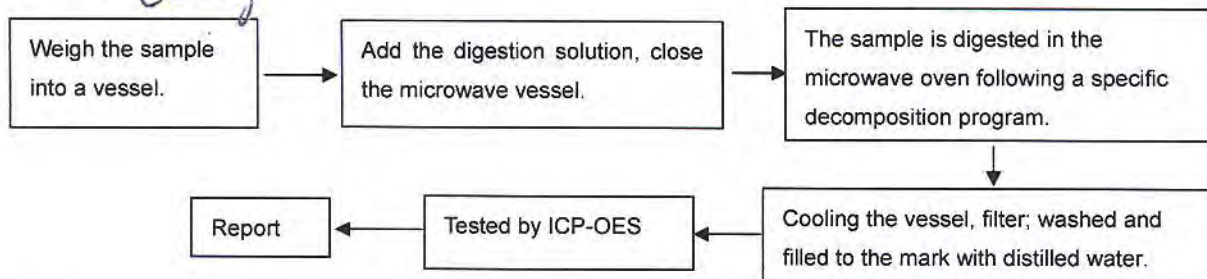
1. To Determine Lead, Cadmium Content: (Metal substrate)

Tested by: *Condy*



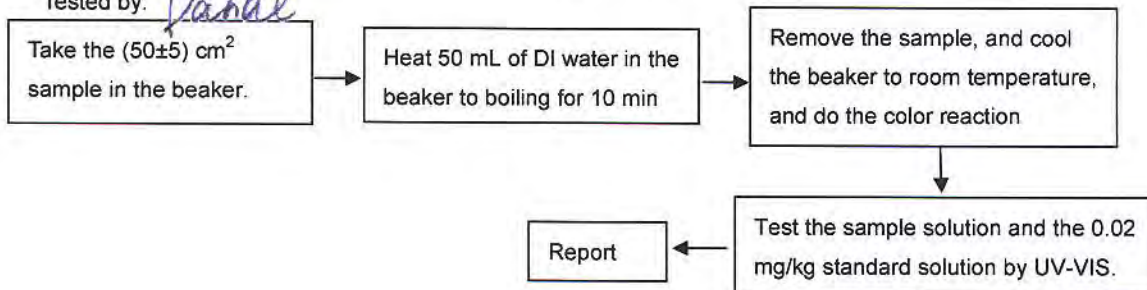
2. To Determine Mercury Content: (Metal substrate)

Tested by: *Condy*



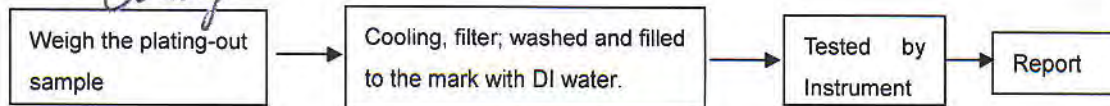
3. To Determine Hexavalent Chromium Content (boiling- water- extraction): (Metal substrate)

Tested by: *Danae*



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

Tested by: *Condy*



TEST REPORT

NO.: A002E11121307-2R02

Date: Dec.15, 2011

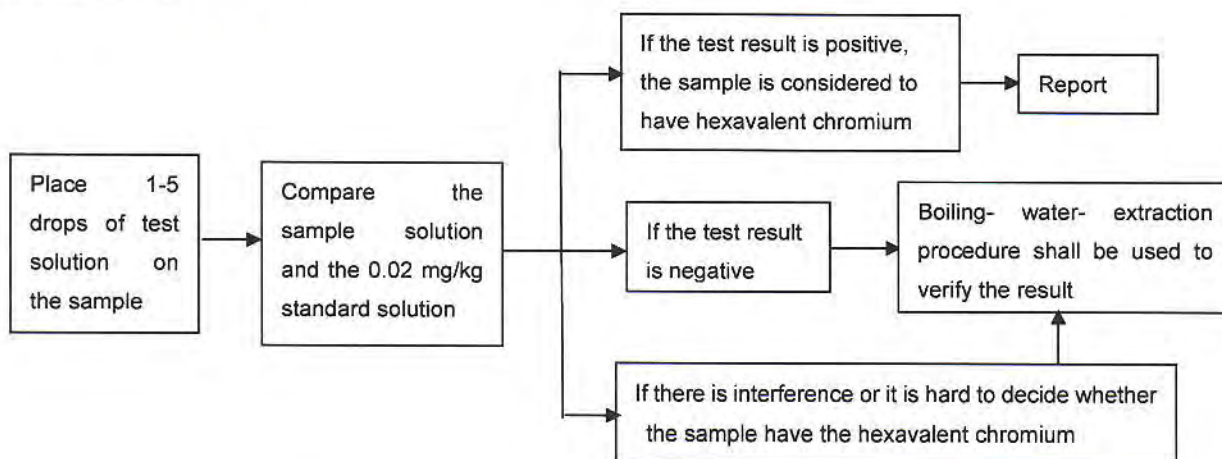
Page 3 of 4

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

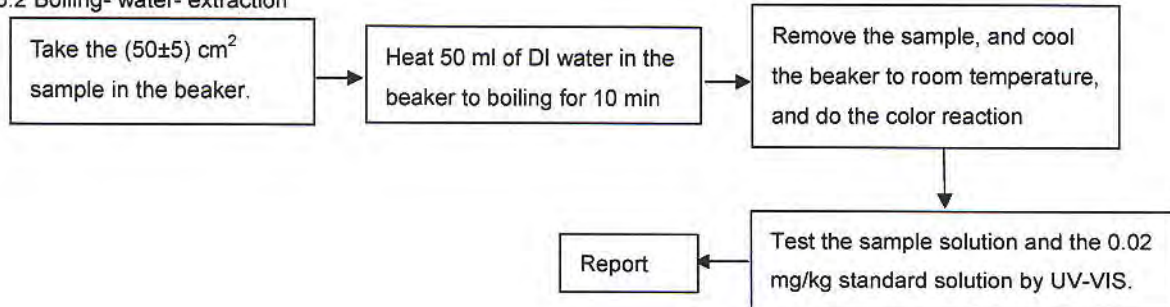
Tested by:

Danai

5.1 Spot-test



5.2 Boiling- water- extraction



Sample description:

Code	Sample name	Code	Sample name
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.	2.5	40.0	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.: A002E11121307-2R02

Date: Dec.15, 2011

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);

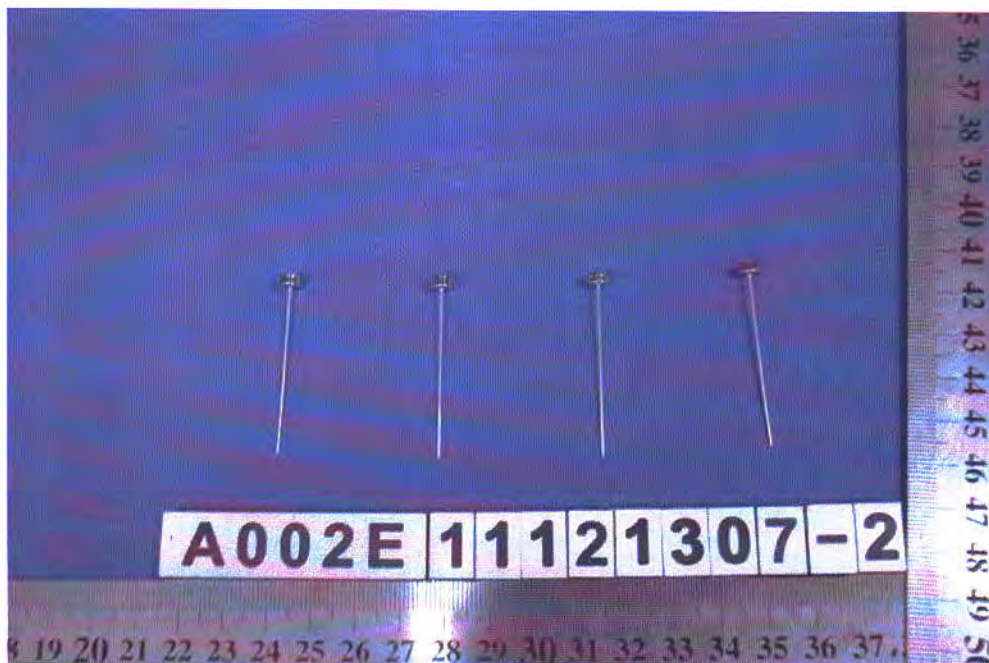
Uncertain= can not verify whether the sample have Hexavalent Chromium by spot-test.

(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



Fuses copper shell

End of Report



TEST REPORT

NUMBER: SHAH00299962

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATTN: A. CESISTA/ K. BACILA

DATE: JAN 18, 2012

SAMPLE DESCRIPTION:

One(1) submitted sample said to be **white yarn**.

Part Description : YARN.

Part Number : 648901.

Date Sample Received : Jan.11, 2012.

Date Test Started : Jan.11, 2012.

TESTS CONDUCTED:

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

TO BE CONTINUED

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

MYRA LV
CHEMICAL LAB SENIOR MANAGER

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

STEPHEN TSANG
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00299962

TESTS CONDUCTED

1 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
Halogen Content	
Fluorine (F)	820
Chlorine (Cl)	ND
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility Of Chemist : Ken He

(II) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<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

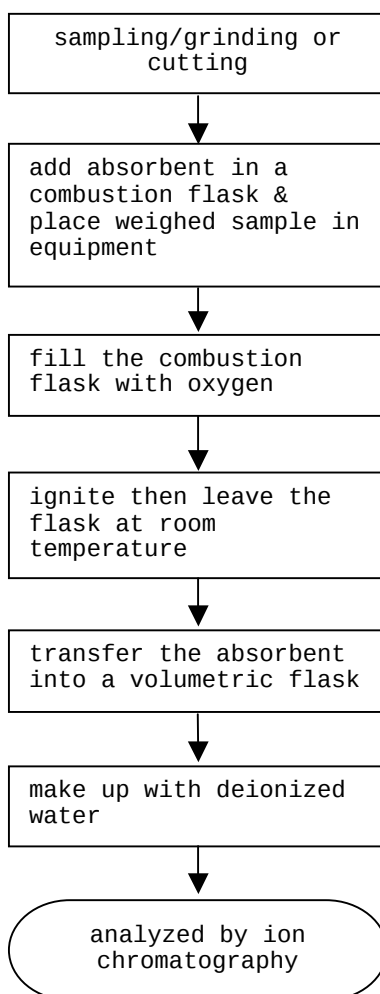
TEST REPORT

NUMBER: SHAH00299962

TESTS CONDUCTED

(III) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00299962

TESTS CONDUCTED

2 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00299962

TESTS CONDUCTED

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

Responsibility Of Chemist : Dent Fang / Ken He

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00299962

TESTS CONDUCTED
(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr 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

DATE SAMPLE RECEIVED : JAN.11, 2012

TESTING PERIOD : JAN.11, 2012 TO JAN.13, 2012

TO BE CONTINUED

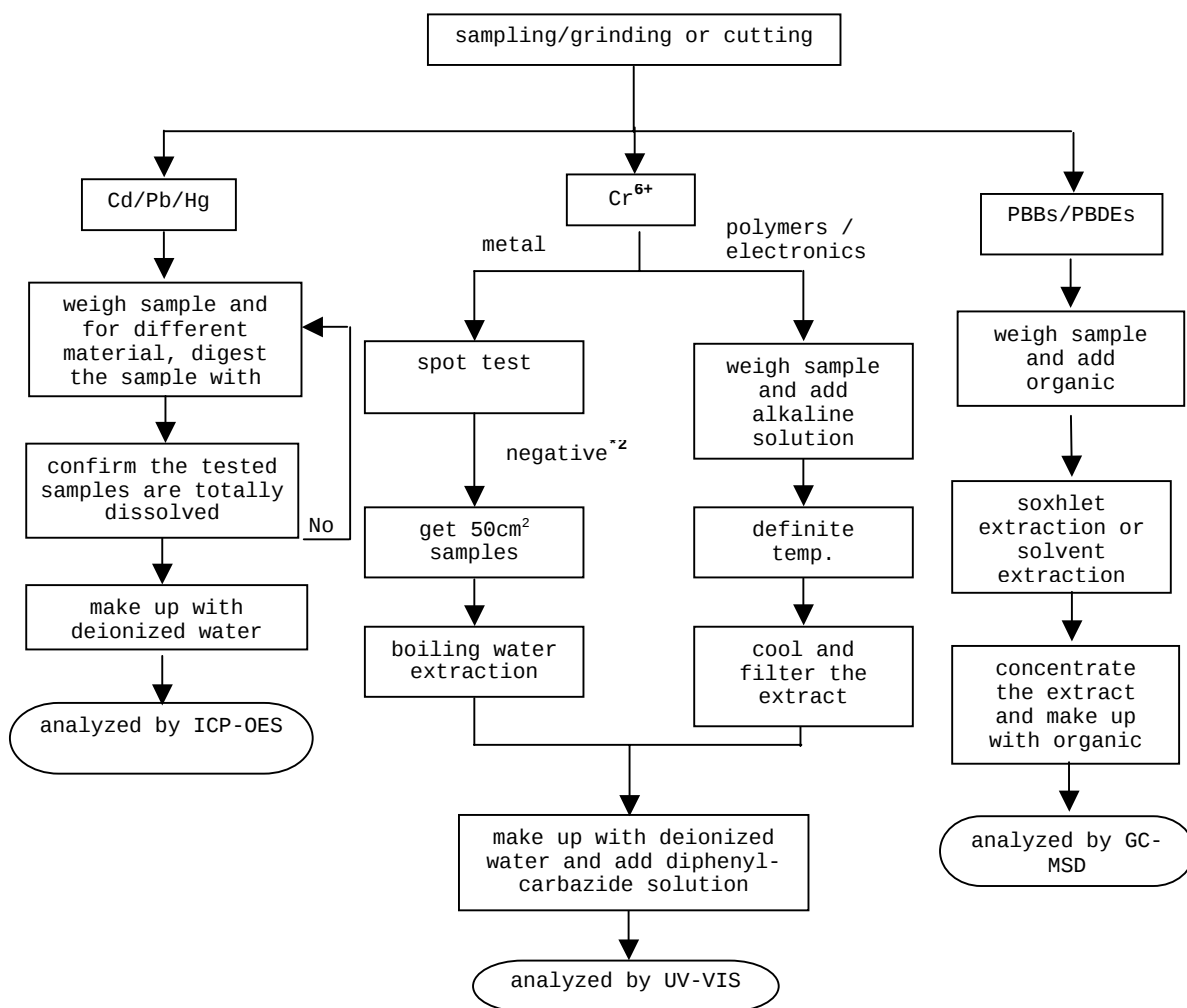
TEST REPORT

NUMBER: SHAH00299962

TESTS CONDUCTED

(IV) Measurement Flowchart:

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



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00299962

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

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

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00299962

TESTS CONDUCTED



END OF REPORT



TEST REPORT

NUMBER: SHAH00299967

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATTN: A. CESISTA/ K. BACILA

DATE: JAN 18, 2012

SAMPLE DESCRIPTION:

One(1) Submitted Sample Said To Be **White Yarn.**

Part Description : Yarn.

Part Number : 648115.

Date Sample Received : Jan.11, 2012.

Date Test Started : Jan.11, 2012.

TESTS CONDUCTED:

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

TO BE CONTINUED

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

MYRA LV
CHEMICAL LAB SENIOR MANAGER

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

STEPHEN TSANG
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00299967

TESTS CONDUCTED

1 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
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 : Ken He

(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<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

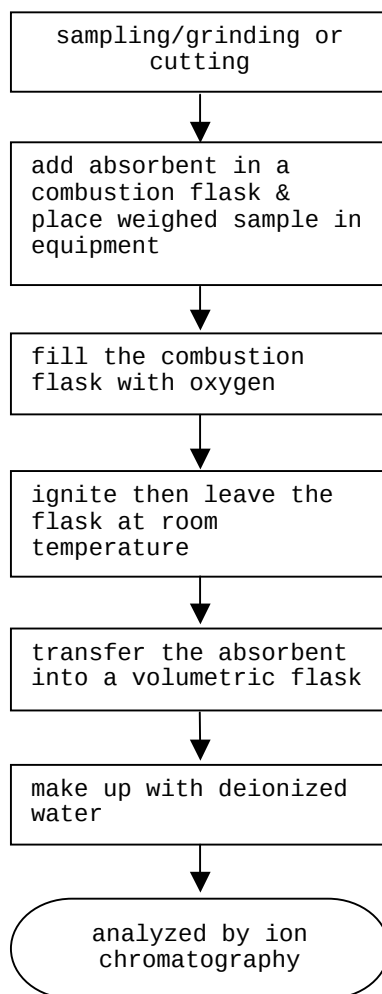
TEST REPORT

NUMBER: SHAH00299967

TESTS CONDUCTED

(III) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00299967

TESTS CONDUCTED

2 (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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00299967

TESTS CONDUCTED

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

Responsibility Of Chemist : Dent Fang / Ken He

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00299967

TESTS CONDUCTED

(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr 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

DATE SAMPLE RECEIVED : JAN.11, 2012

TESTING PERIOD : JAN.11, 2012 TO JAN.13, 2012

TO BE CONTINUED

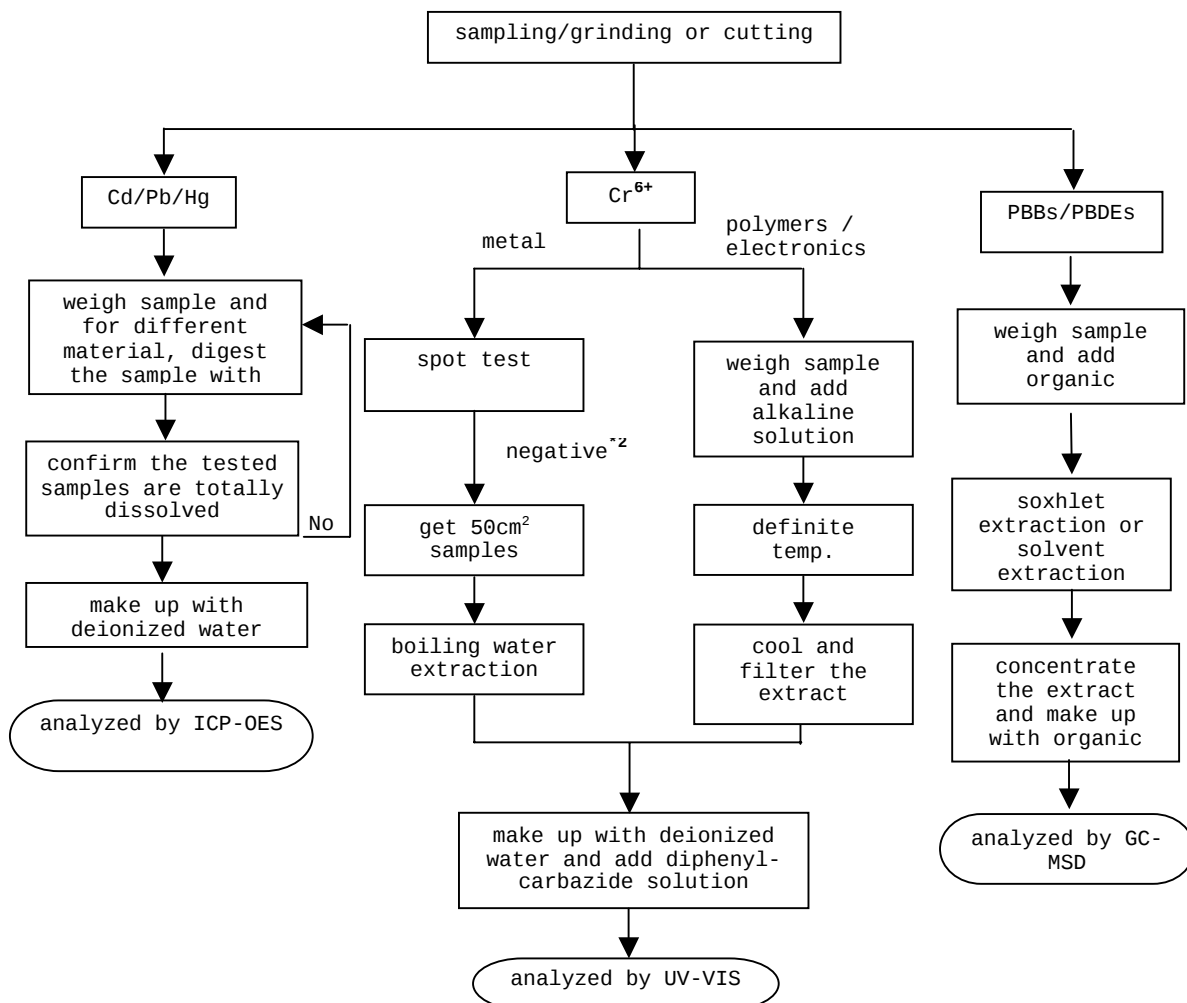
(IV) Measurement Flowchart:

TEST REPORT

NUMBER: SHAH00299967

TESTS CONDUCTED

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



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00299967

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

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

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00299967

TESTS CONDUCTED



END OF REPORT



TEST REPORT

NUMBER: SHAH00299971

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATTN: A. CESISTA/ K. BACILA

DATE: JAN 18, 2012

SAMPLE DESCRIPTION:

One(1) submitted sample said to be **white yarn**.

Part Description : YARN.

Part Number : 648150.

Date Sample Received : Jan.11, 2012.

Date Test Started : Jan.11, 2012.

TESTS CONDUCTED:

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

TO BE CONTINUED

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

MYRA LV
CHEMICAL LAB SENIOR MANAGER

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

STEPHEN TSANG
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00299971

TESTS CONDUCTED

1 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
Halogen Content	
Fluorine (F)	370
Chlorine (Cl)	ND
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility Of Chemist : Ken He

(II) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<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

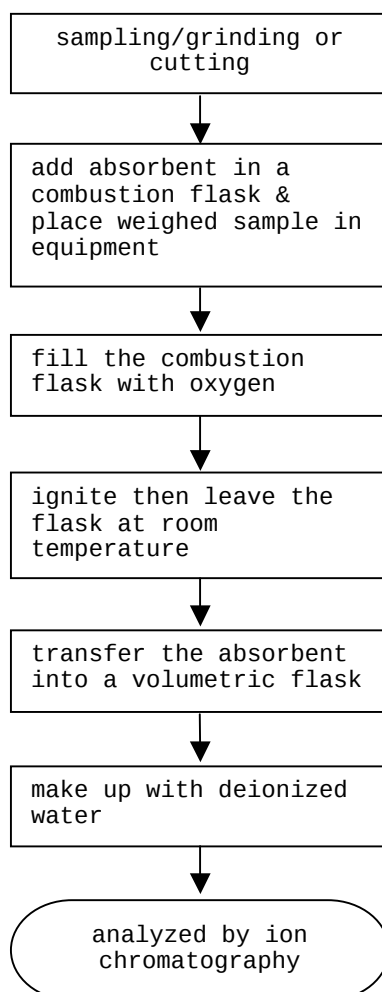
TEST REPORT

NUMBER: SHAH00299971

TESTS CONDUCTED

(III) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00299971

TESTS CONDUCTED

2 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00299971

TESTS CONDUCTED

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

Responsibility Of Chemist : Dent Fang / Ken He

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ehters (PBDEs)	0.1% (1000ppm)

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00299971

TESTS CONDUCTED
(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr 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

DATE SAMPLE RECEIVED : JAN.11, 2012

TESTING PERIOD : JAN.11, 2012 TO JAN.13, 2012

TO BE CONTINUED

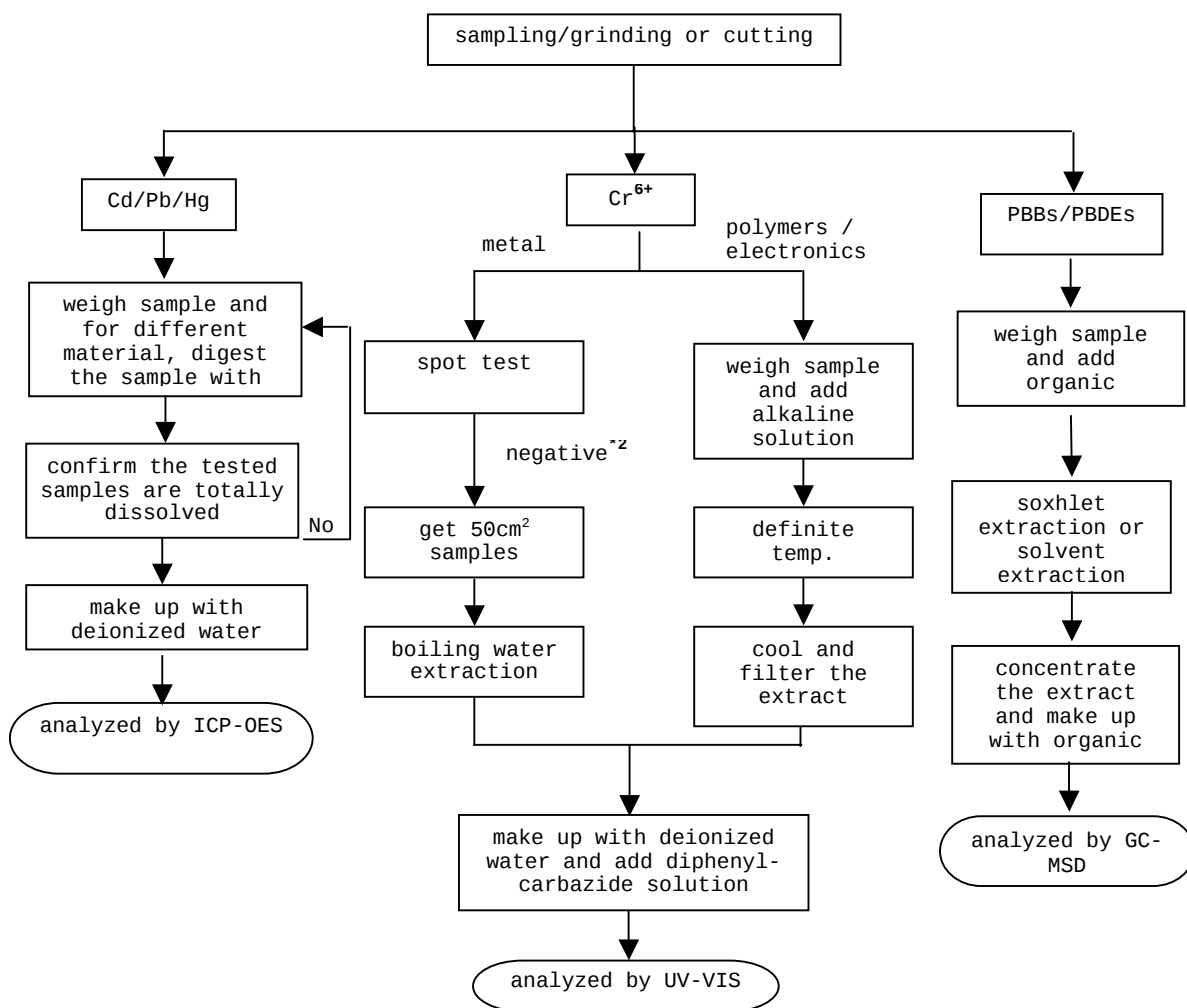
TEST REPORT

NUMBER: SHAH00299971

TESTS CONDUCTED

(IV) Measurement Flowchart:

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



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00299971

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

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

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00299971

TESTS CONDUCTED



END OF REPORT



TEST REPORT

NUMBER: SHAH00287567

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATTN: A. CESISTA/ K. BACILA

DATE: NOV 01, 2011

SAMPLE DESCRIPTION:

One (1) submitted sample said to be **Orange ink.**

Part Description : Ink - orange.

Part Number : 425900.

Date Sample Received : Oct.25, 2011.

Date Test Started : Oct.25, 2011.

TESTS CONDUCTED:

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

TO BE CONTINUED

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

MYRA LV
CHEMICAL LAB SENIOR MANAGER

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

STEPHEN TSANG
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED

1 PHTHALATE CONTENT TEST

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

<u>TESTED COMPOUND</u>	<u>RESULT (% 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE

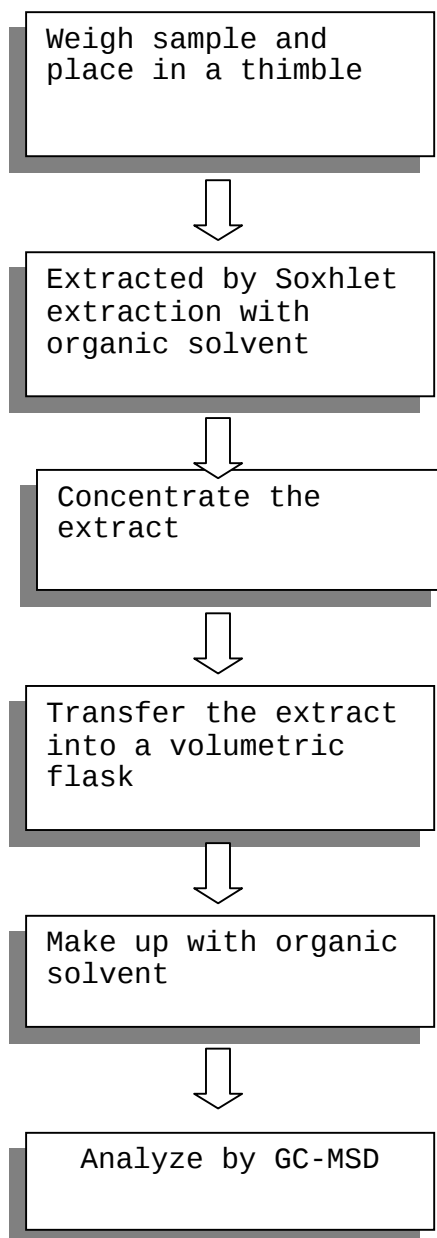
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED

2 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	14500
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility Of Chemist : Ken He

(II) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<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

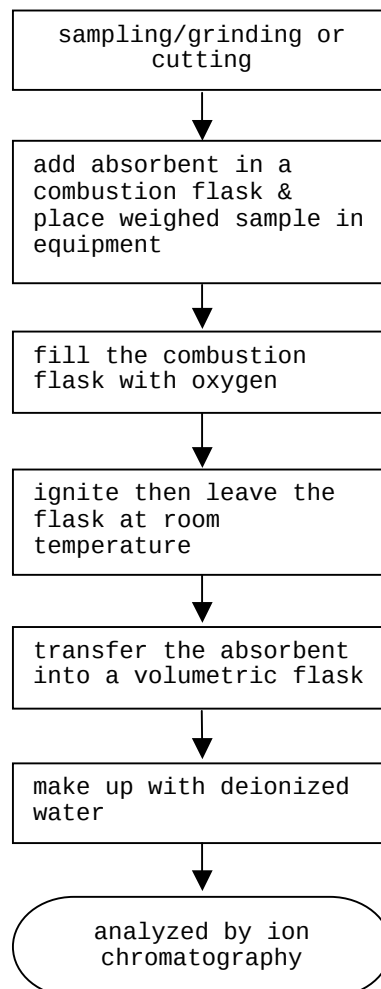
TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED

(III) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED

3 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED

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

Responsibility Of Chemist : Dent Fang / Ken He

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED

(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr 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

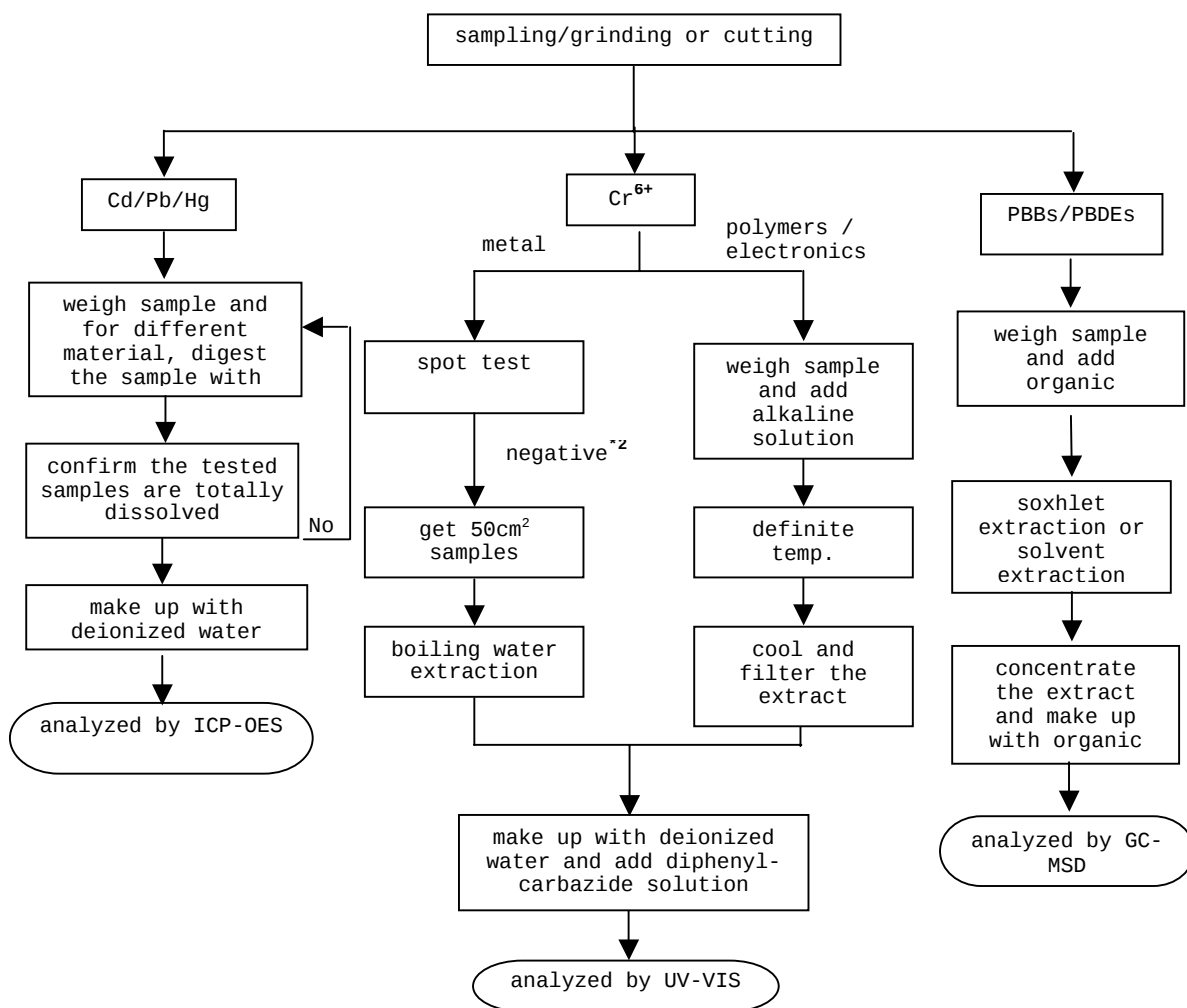
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED
 (IV) Measurement Flowchart:

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



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

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

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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED

4 PHthalate Content Test

WITH REFERENCE TO ASTM D3421, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

	RESULT (% , w/w)	LIMIT (% , w/w) (MAX.)
DIBUTYL 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE

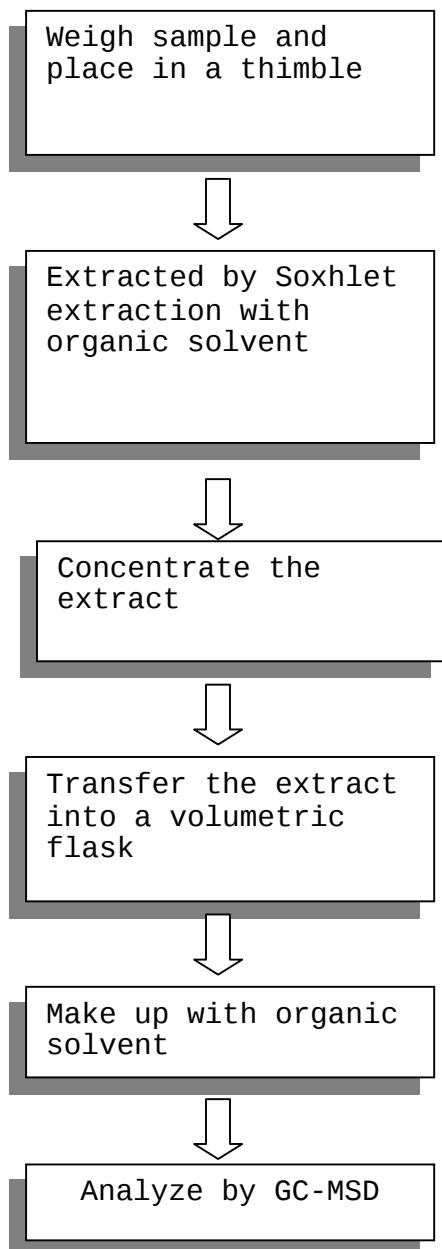
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED
5 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg
ND = NOT DETECTED

(B) TEST METHOD :

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

DATE SAMPLE RECEIVED : OCT.25, 2011

TESTING PERIOD : OCT.25, 2011 TO OCT.31, 2011

TO BE CONTINUED

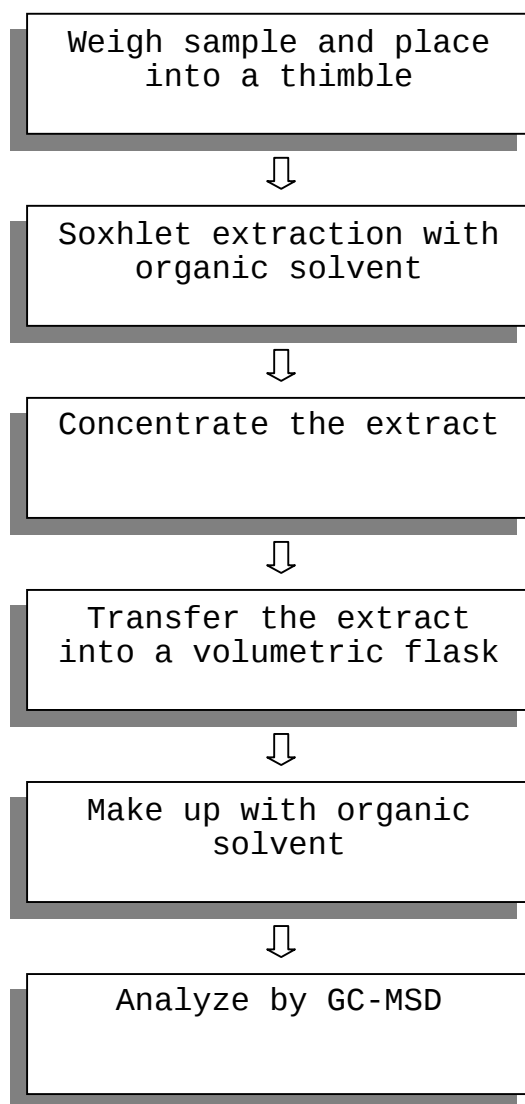
TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCDD (Hexabromocyclododecane) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287567

TESTS CONDUCTED



END OF REPORT



TEST REPORT

NUMBER: SHAH00287553

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATTN: A. CESISTA/ K. BACILA

DATE: NOV 01, 2011

SAMPLE DESCRIPTION:

One (1) submitted sample said to be: **Red ink.**

Part Description : Ink - red.

Part Number : 425901.

Date Sample Received : Oct.25, 2011.

Date Test Started : Oct.25, 2011.

TESTS CONDUCTED:

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

TO BE CONTINUED

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

MYRA LV
CHEMICAL LAB SENIOR MANAGER

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

STEPHEN TSANG
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED

1 PHTHALATE CONTENT TEST

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

<u>TESTED COMPOUND</u>	<u>RESULT (% 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE/COMPONENT

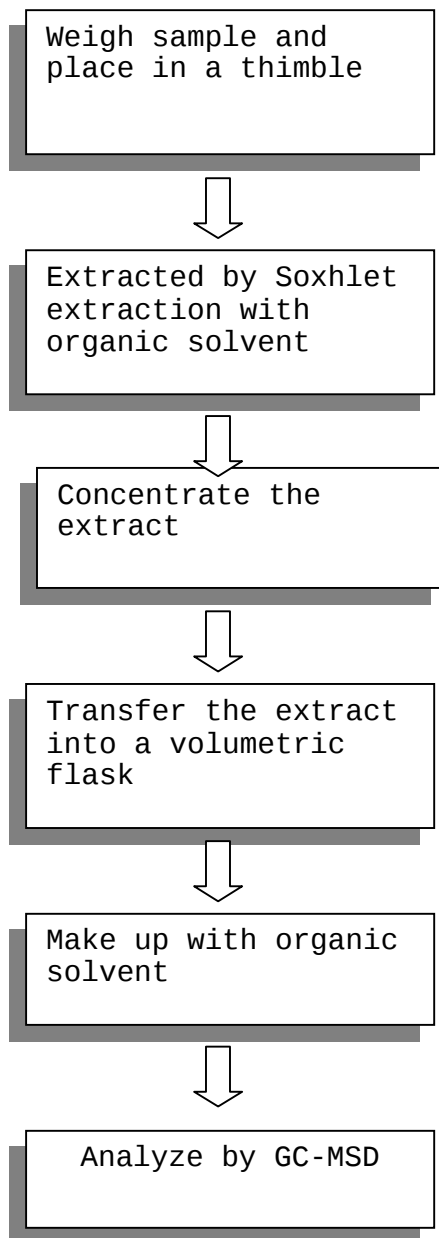
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED

2 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	720
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility Of Chemist : Ken He

(II) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<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

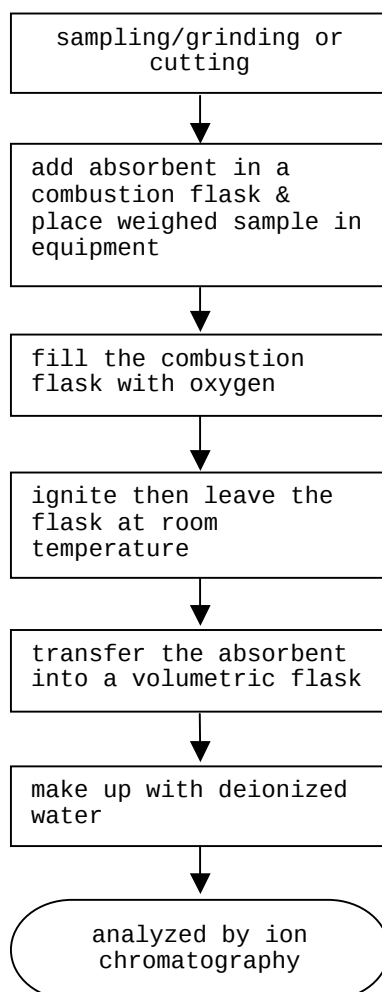
TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED

(III) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED

3 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED

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

Responsibility Of Chemist :Dent Fang / Ken He

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ehters (PBDEs)	0.1% (1000ppm)

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED

(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr 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

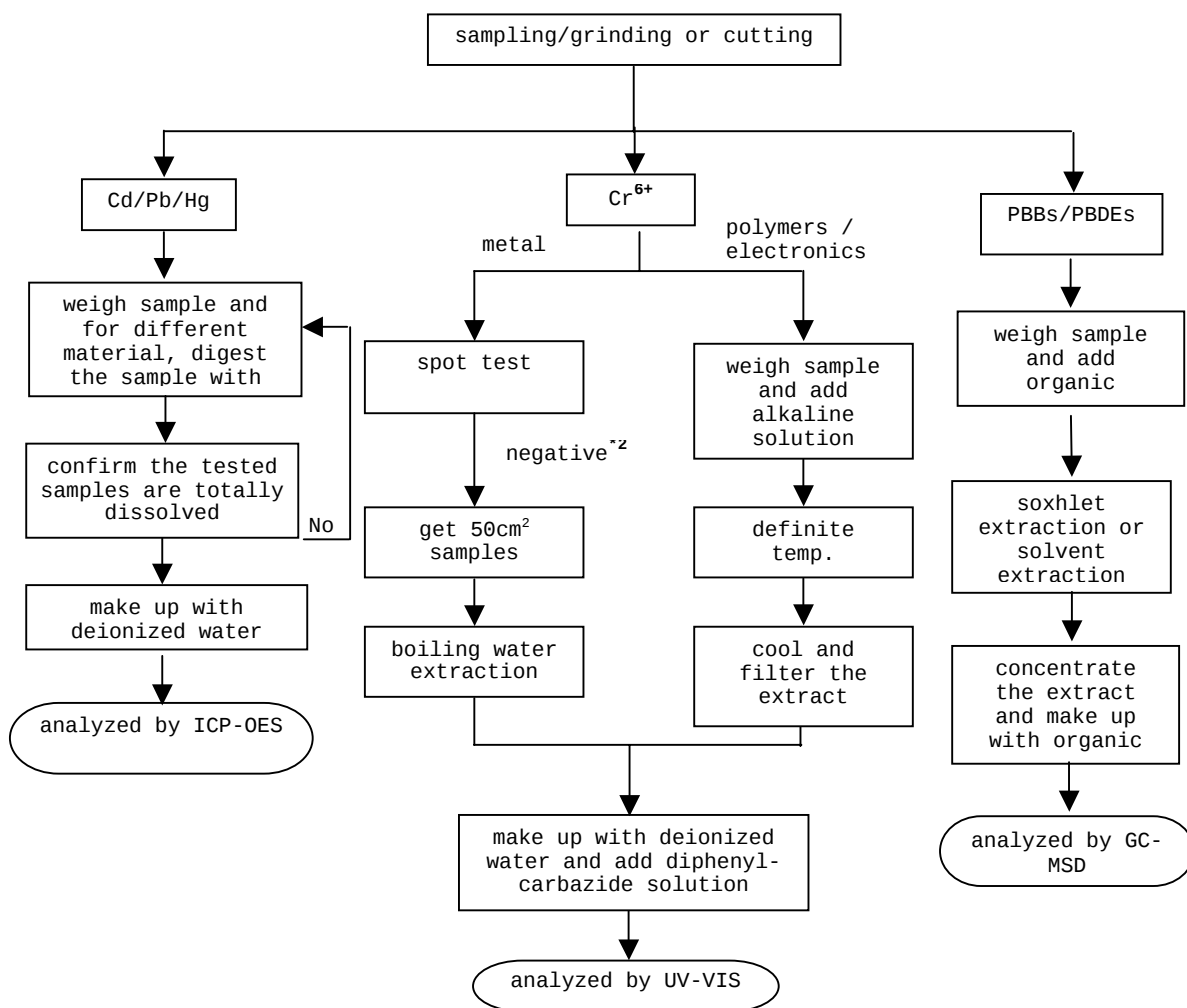
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED
 (IV) Measurement Flowchart:

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



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

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

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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED

4 PHthalate Content Test

WITH REFERENCE TO ASTM D3421, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

	RESULT (% , w/w)	LIMIT (% , w/w) (MAX.)
DIBUTYL 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE/COMPONENT.

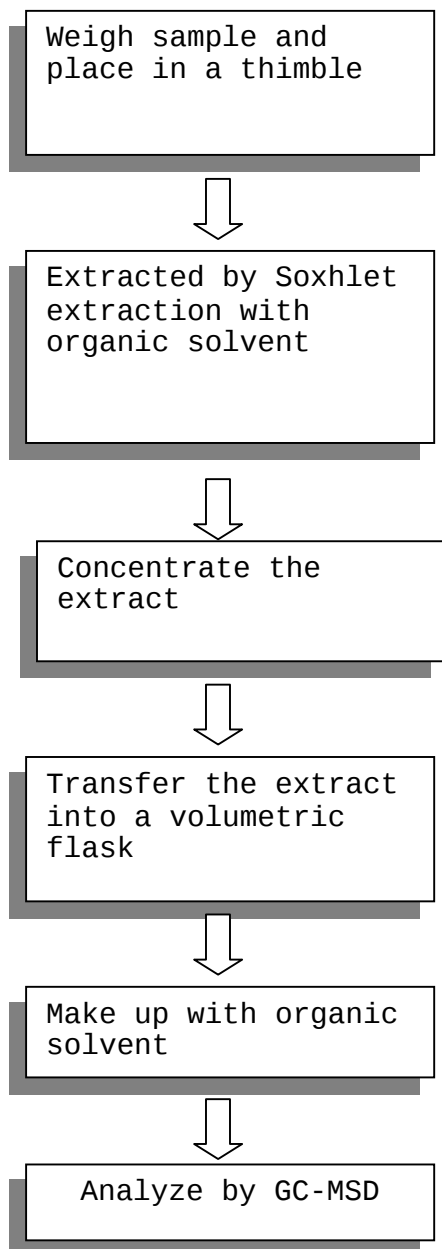
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED

5 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

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

DATE SAMPLE RECEIVED : OCT.25, 2011

TESTING PERIOD : OCT.25, 2011 TO OCT.31, 2011

TO BE CONTINUED

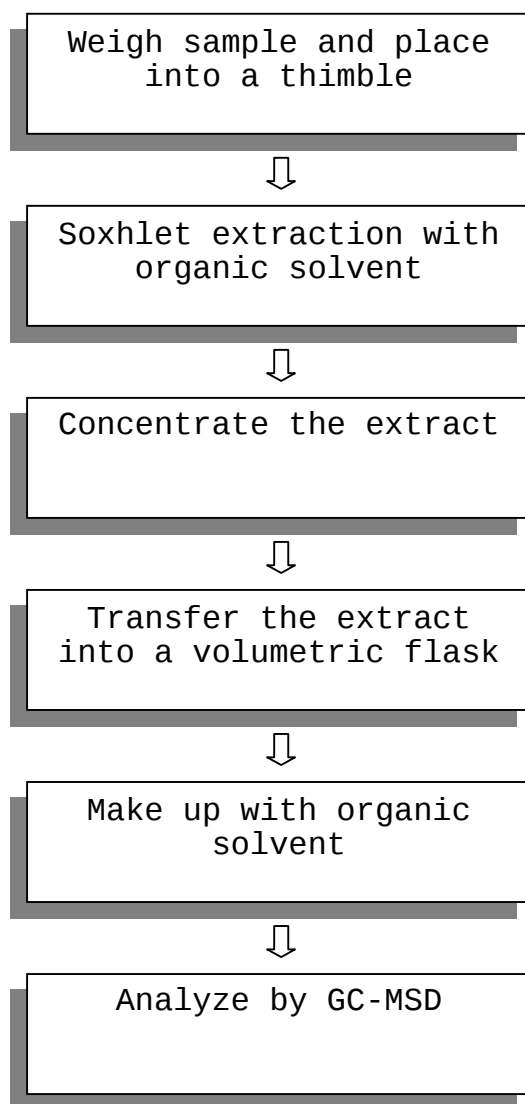
TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCDD (Hexabromocyclododecane) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287553

TESTS CONDUCTED



END OF REPORT



TEST REPORT

NUMBER: SHAH00287569

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATTN: A. CESISTA/ K. BACILA

DATE: OCT 31, 2011

SAMPLE DESCRIPTION:

One (1) submitted sample said to be **Black ink.**

Part Description : Ink - black.

Part Number : 425902.

Date Sample Received : Oct.25, 2011.

Date Test Started : Oct.25, 2011.

TESTS CONDUCTED:

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

TO BE CONTINUED

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

MYRA LV
CHEMICAL LAB SENIOR MANAGER

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

STEPHEN TSANG
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED

1 PHTHALATE CONTENT TEST

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

<u>TESTED COMPOUND</u>	<u>RESULT (% 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE/COMPONENT

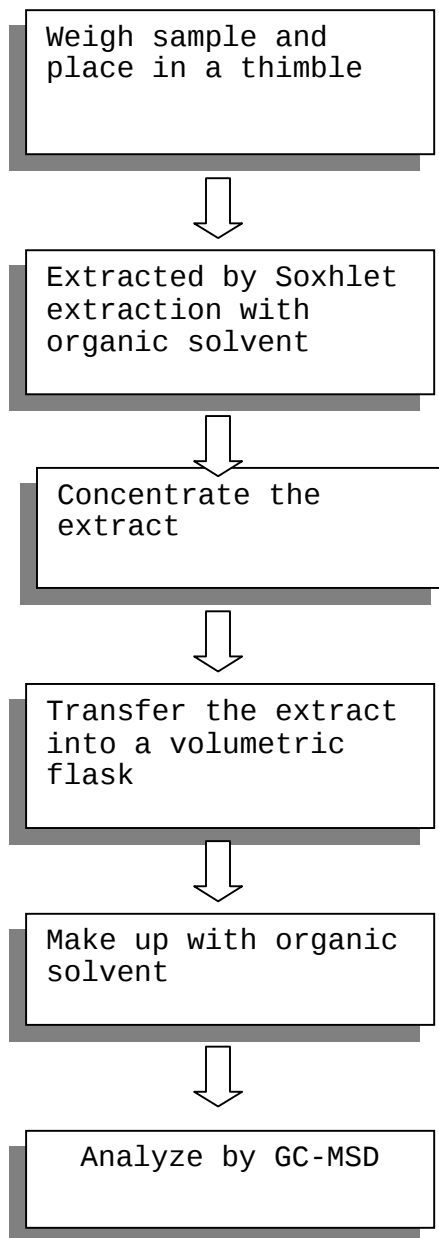
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED

2 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
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
 ND = Not detected

Responsibility Of Chemist : Ken He

(II) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<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

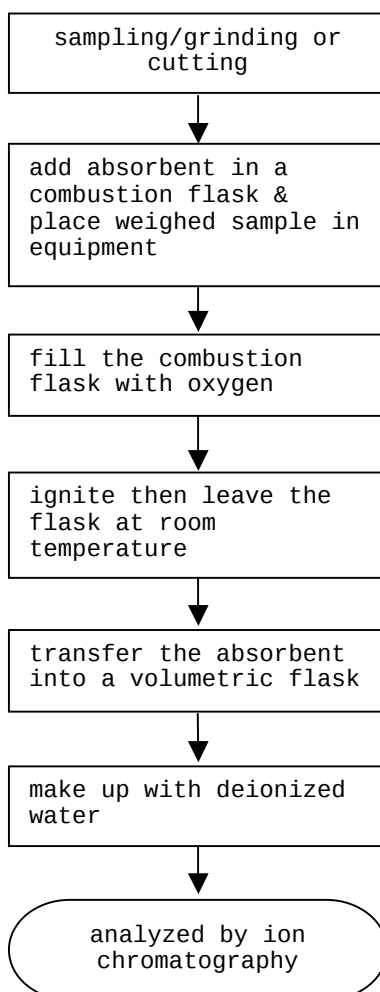
TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED

(III) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED

3 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED

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

Responsibility Of Chemist : Dent Fang / Ken He

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED

(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr 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

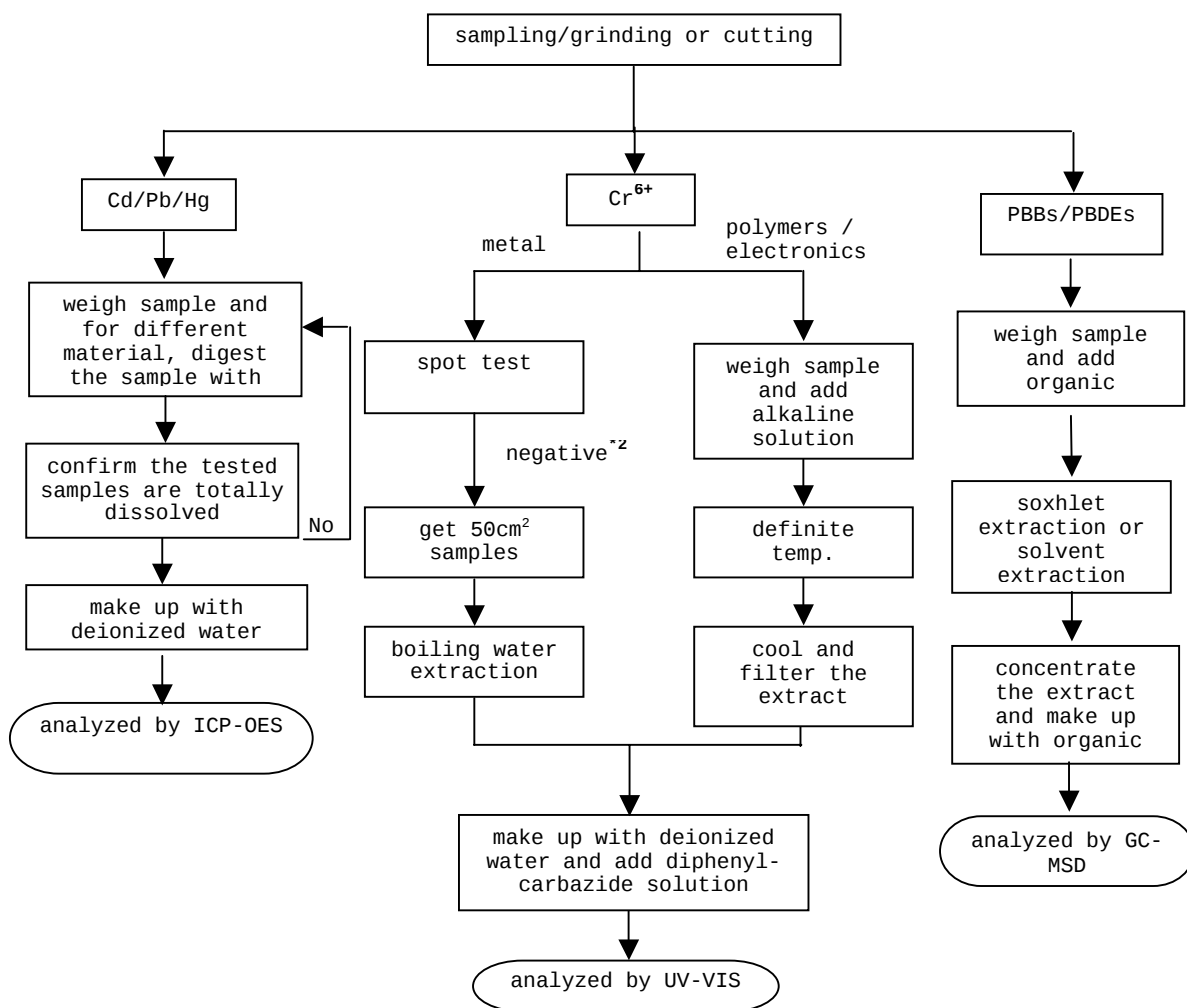
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED
 (IV) Measurement Flowchart:

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



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

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

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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED

4 PHthalate Content Test

WITH REFERENCE TO ASTM D3421, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

	RESULT (% , w/w)	LIMIT (% , w/w) (MAX.)
DIBUTYL 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE/COMPONENT.

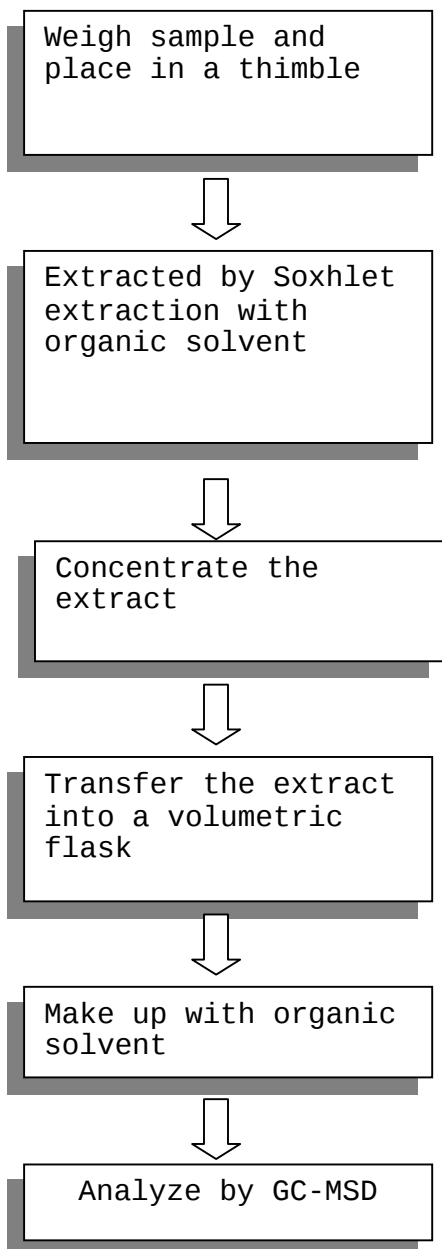
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED

5 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

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

DATE SAMPLE RECEIVED : OCT.25, 2011

TESTING PERIOD : OCT.25, 2011 TO OCT.28, 2011

TO BE CONTINUED

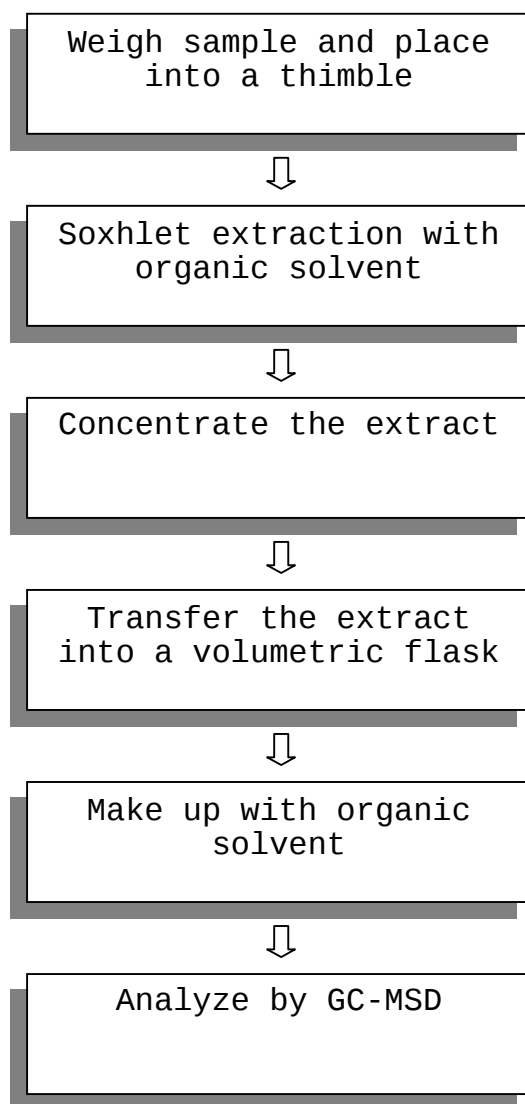
TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCDD (Hexabromocyclododecane) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287569

TESTS CONDUCTED



END OF REPORT



TEST REPORT

NUMBER: SHAH00287549

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATTN: A. CESISTA/ K. BACILA

DATE: OCT 31, 2011

SAMPLE DESCRIPTION:

One (1) submitted sample said to be: **Blue ink.**

Part Description : Ink - blue.

Part Number : 425904.

Date Sample Received : Oct.25, 2011.

Date Test Started : Oct.25, 2011.

TESTS CONDUCTED:

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

TO BE CONTINUED

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

MYRA LV
CHEMICAL LAB SENIOR MANAGER

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

STEPHEN TSANG
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED

1 PHthalate Content Test

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

<u>TESTED COMPOUND</u>	<u>RESULT (% ,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

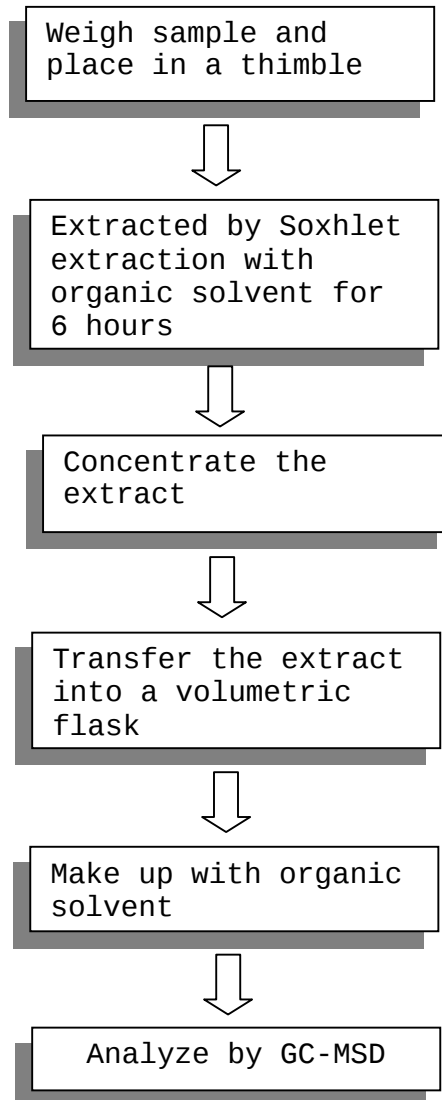
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES (EN14372) CONTENTS



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED

2 (I) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	500
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility Of Chemist : Ken He

Date Sample Received : OCT.25, 2011

Testing Period : OCT.28, 2011

(II) Test Method:

Testing Item	Testing Method	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

TEST REPORT

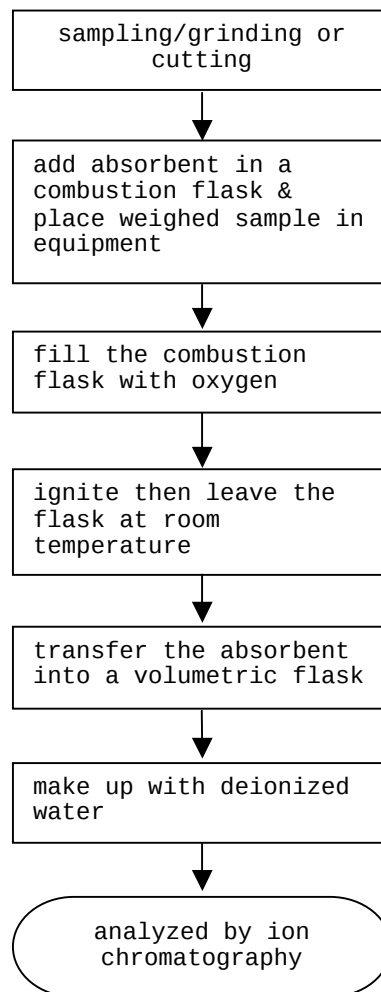
NUMBER: SHAH00287549

TESTS CONDUCTED

(III) Measurement Flowchart:

Test For Halogen Content

Reference Standard: EN 14582



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED

3 (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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED

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

Responsibility Of Chemist : Dent Fang / Ken He

Date Sample Received : OCT.28, 2011
 Testing Period : OCT.28, 2011

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED

(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr 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

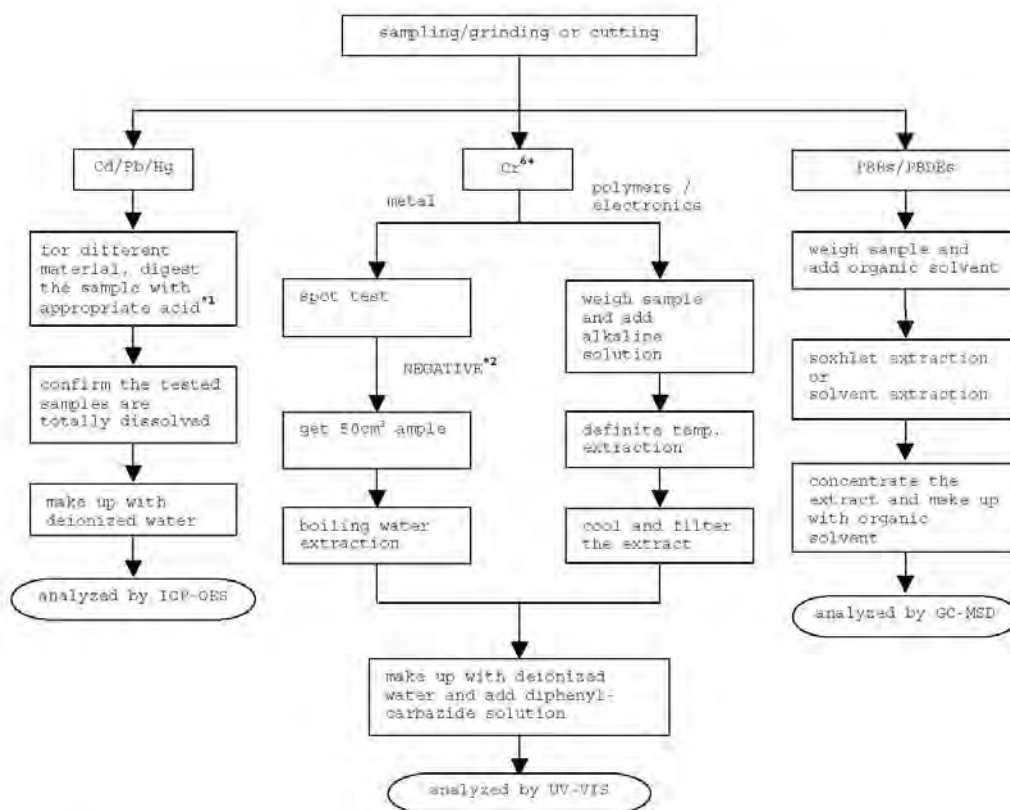
TEST REPORT

NUMBER: SHAH00287549

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	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED

4 PHthalate Content Test

WITH REFERENCE TO ASTM D3421, BY GAS CHROMATOGRAPHY-MASS
SPECTROMETRY (GC-MS) ANALYSIS.

	<u>RESULT (% w/w)</u>	<u>LIMIT (% w/w)</u> <u>(MAX.)</u>
DIBUTYL 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

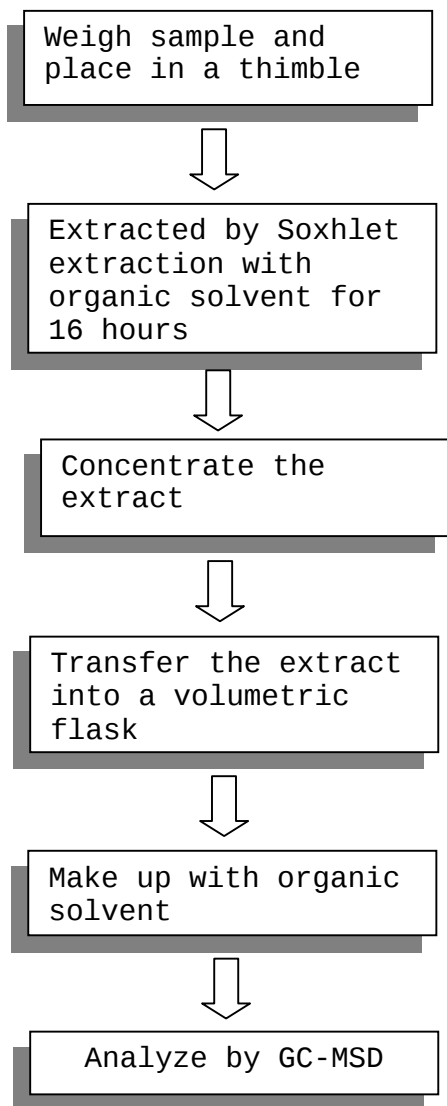
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES (ASTM D3421) CONTENTS



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED

5 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

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

DATE SAMPLE RECEIVED : OCT.25, 2011

TESTING PERIOD : OCT.25, 2011 TO OCT.28, 2011

TO BE CONTINUED

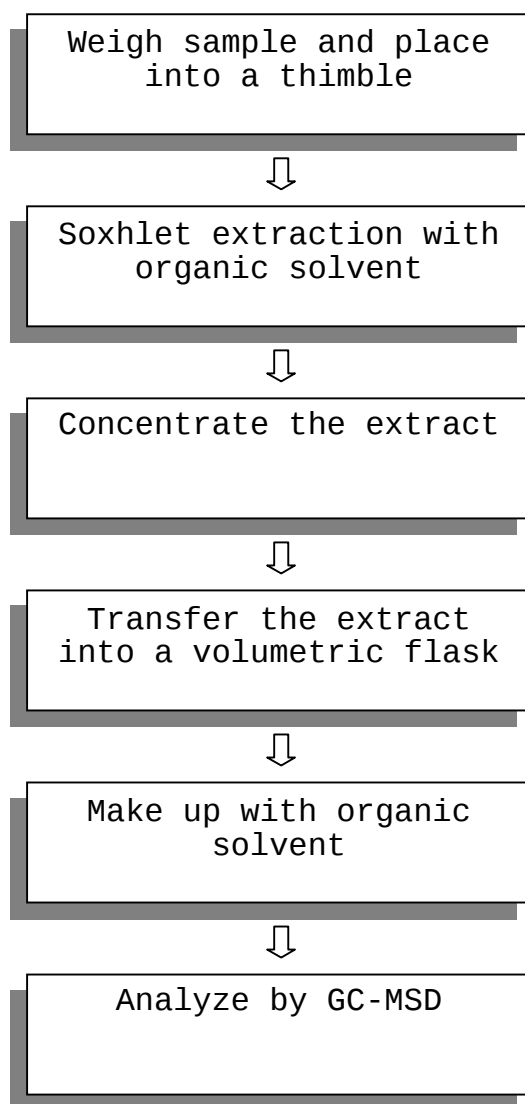
TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCDD (Hexabromocyclododecane) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287549

TESTS CONDUCTED



END OF REPORT



TEST REPORT

NUMBER: SHAH00287516

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATTN: A. CESISTA/ K. BACILA

DATE: OCT 31, 2011

SAMPLE DESCRIPTION:

One (1) submitted sample said to be **Brown ink.**

Part Description : Ink - brown.

Part Number : 425906.

Date Sample Received : Oct.25, 2011.

Date Test Started : Oct.25, 2011.

TESTS CONDUCTED:

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

TO BE CONTINUED

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

MYRA LV
CHEMICAL LAB SENIOR MANAGER

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

STEPHEN TSANG
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED

1 PHthalate Content Test

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

<u>TESTED COMPOUND</u>	<u>RESULT (% , 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE/COMPONENT

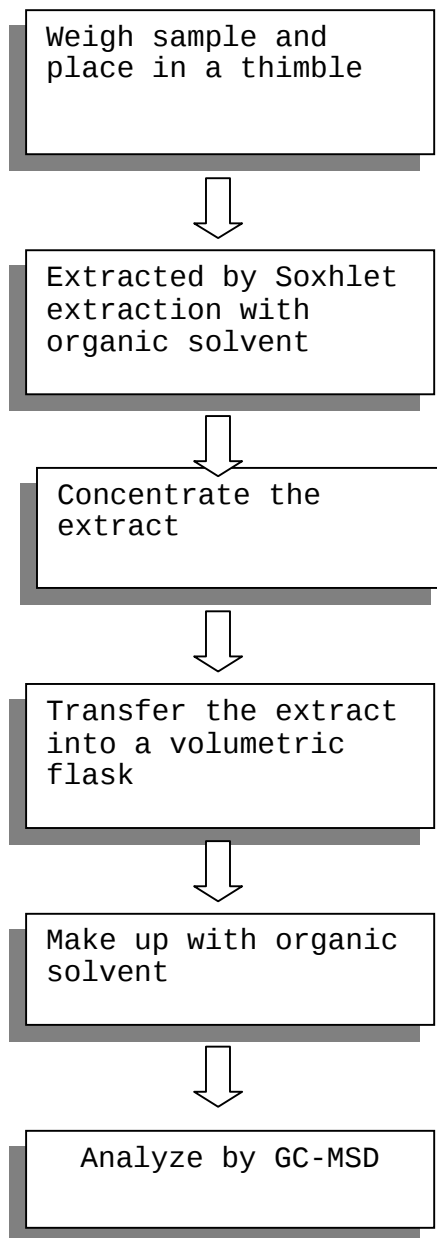
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED

2 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	6850
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility Of Chemist : Ken He

(II) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<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

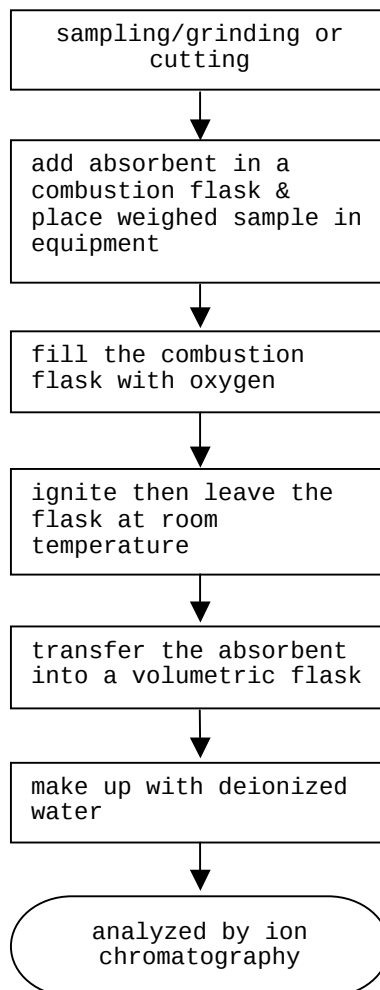
TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED

(III) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED

3 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED

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

Responsibility Of Chemist : Dent Fang / Ken He

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED

(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr 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

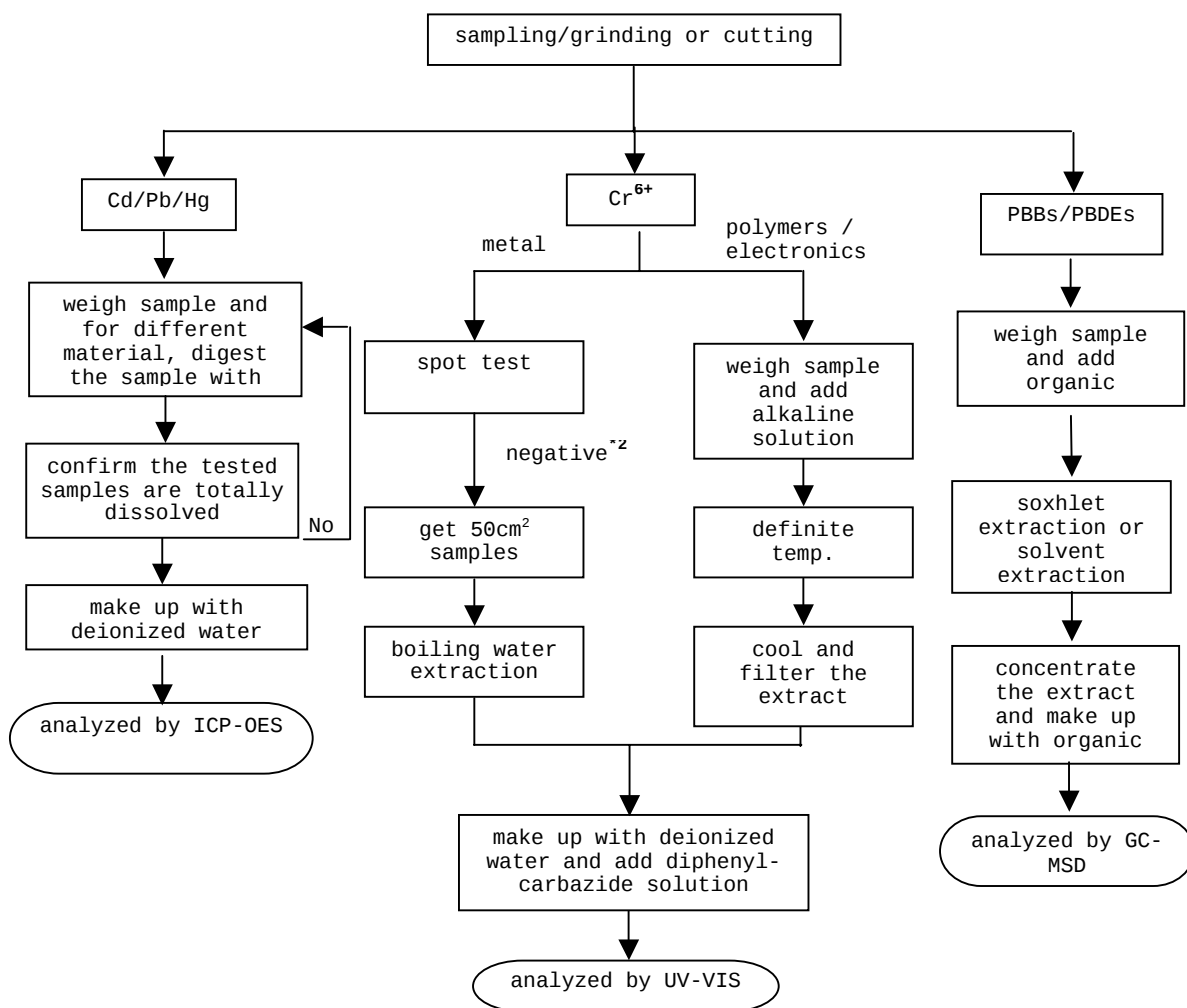
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED
 (IV) Measurement Flowchart:

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



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

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

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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED

4 PHthalate Content Test

WITH REFERENCE TO ASTM D3421, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

	RESULT (% , w/w)	LIMIT (% , w/w) (MAX.)
DIBUTYL 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE/COMPONENT.

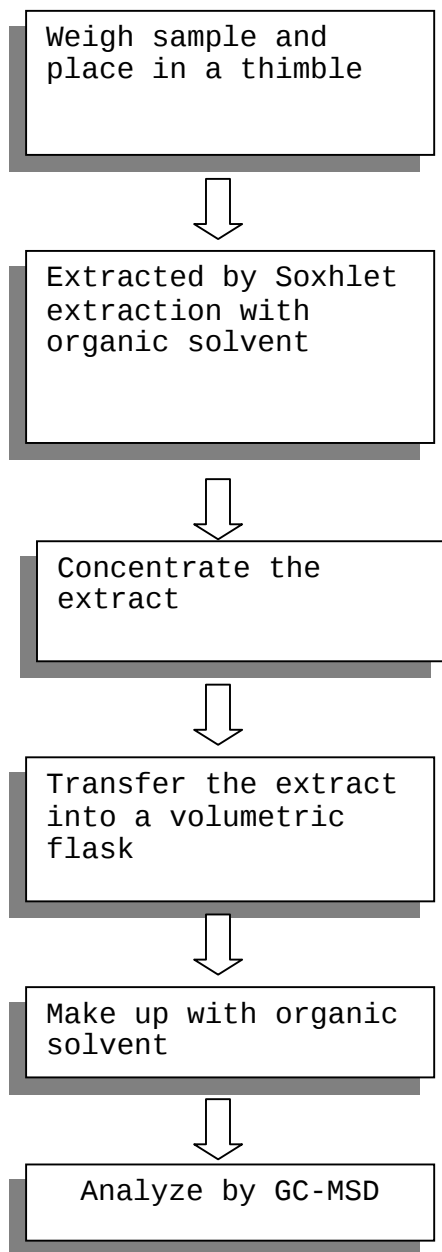
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED

5 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

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

DATE SAMPLE RECEIVED : OCT.25, 2011

TESTING PERIOD : OCT.25, 2011 TO OCT.28, 2011

TO BE CONTINUED

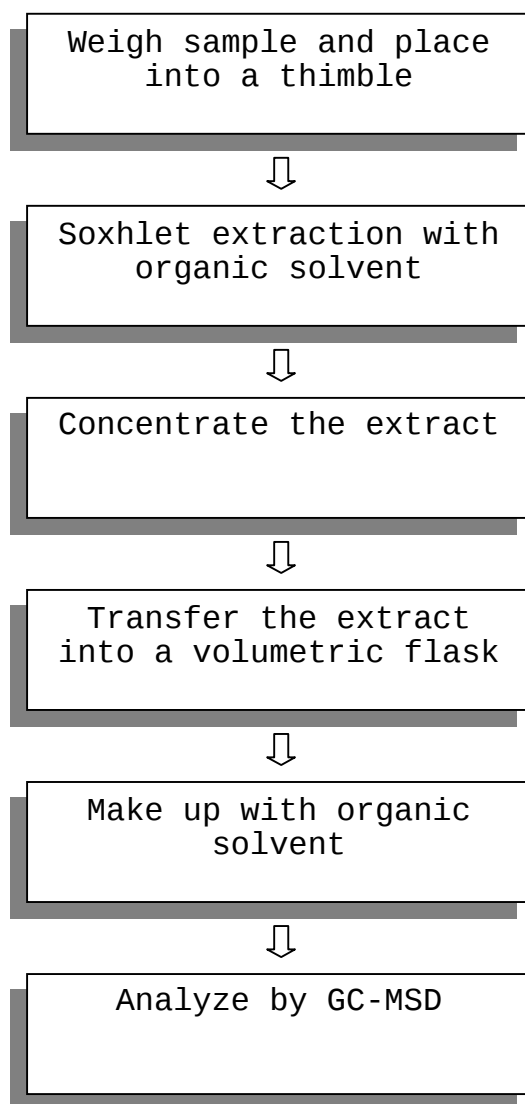
TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCDD (Hexabromocyclododecane) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287516

TESTS CONDUCTED



END OF REPORT



TEST REPORT

NUMBER: SHAH00287571

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATTN: A. CESISTA/ K. BACILA

DATE: NOV 01, 2011

SAMPLE DESCRIPTION:

One (1) submitted sample said to be **Green ink.**

Part Description : Ink - green.

Part Number : 425907.

Date Sample Received : Oct.25, 2011.

Date Test Started : Oct.25, 2011.

TESTS CONDUCTED:

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

TO BE CONTINUED

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

MYRA LV
CHEMICAL LAB SENIOR MANAGER

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

STEPHEN TSANG
GENERAL MANAGER



TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED

1 PHthalate Content Test

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

<u>TESTED COMPOUND</u>	<u>RESULT (% 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE/COMPONENT

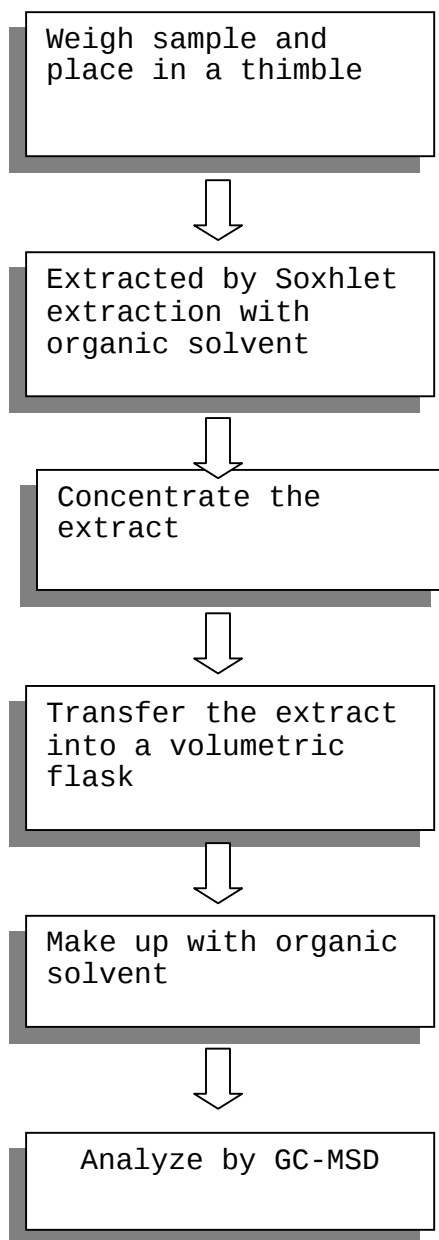
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED

2 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	400
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility Of Chemist : Ken He

(II) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<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

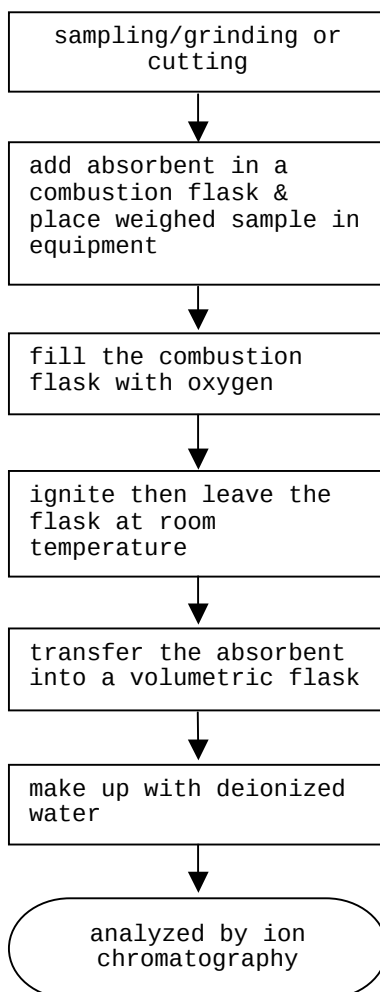
TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED

(III) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED

3 (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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED

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

Responsibility Of Chemist : Dent Fang / Ken He

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED

(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr 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

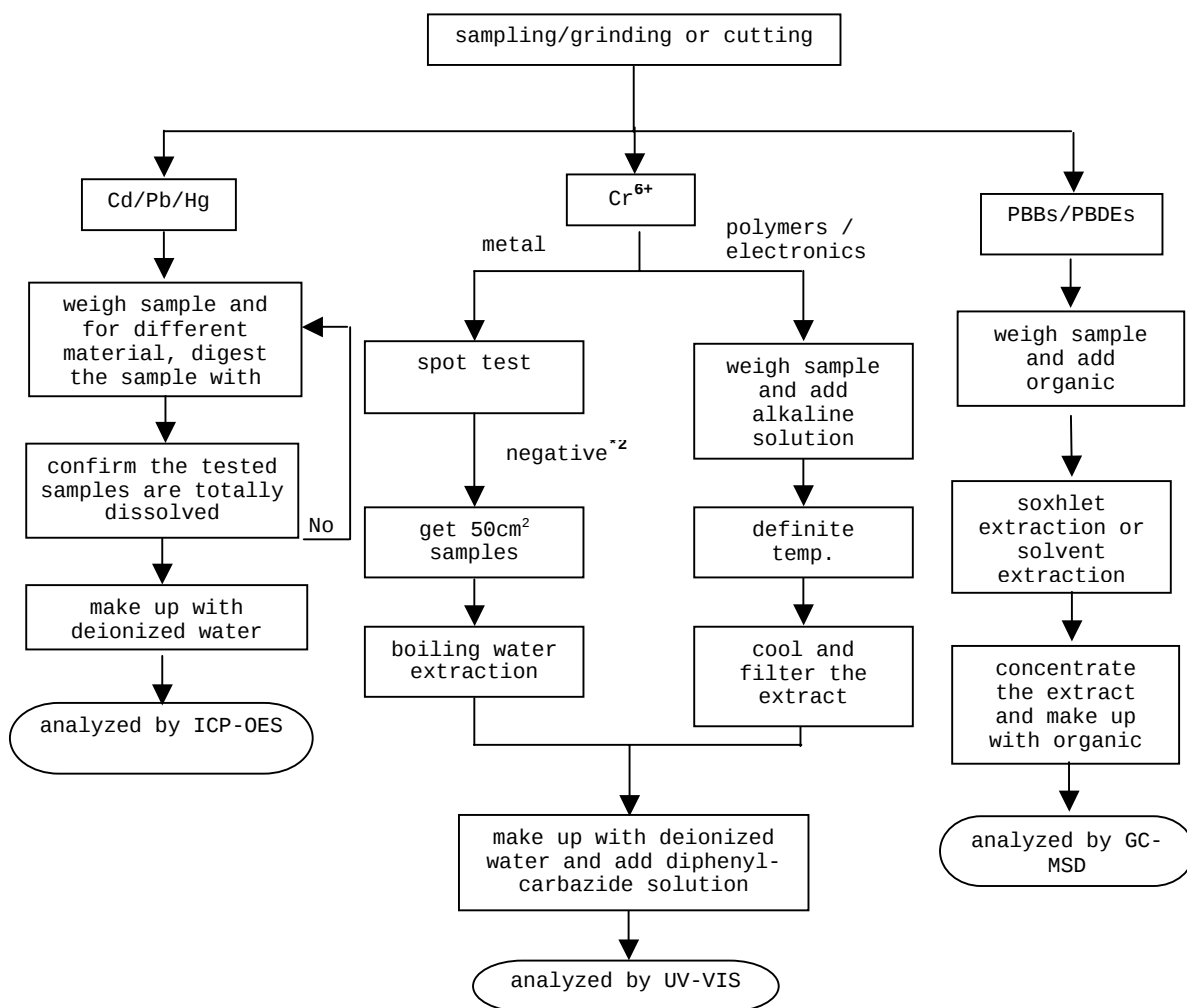
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED (IV) Measurement Flowchart:

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



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

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

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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED

4 PHthalate Content Test

WITH REFERENCE TO ASTM D3421, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

	RESULT (% , w/w)	LIMIT (% , w/w) (MAX.)
DIBUTYL 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE/COMPONENT.

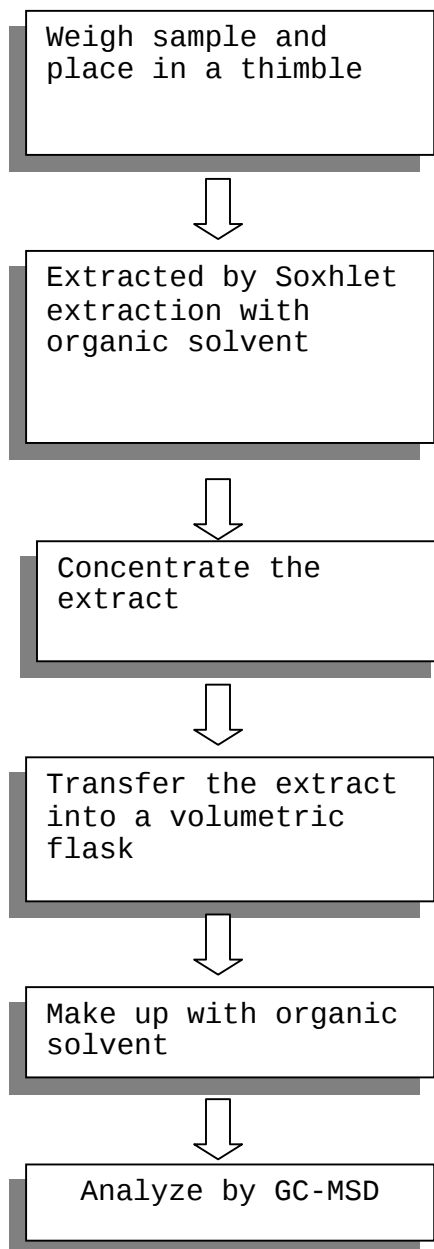
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED

5 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

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

DATE SAMPLE RECEIVED : OCT.25, 2011

TESTING PERIOD : OCT.25, 2011 TO OCT.28, 2011

TO BE CONTINUED

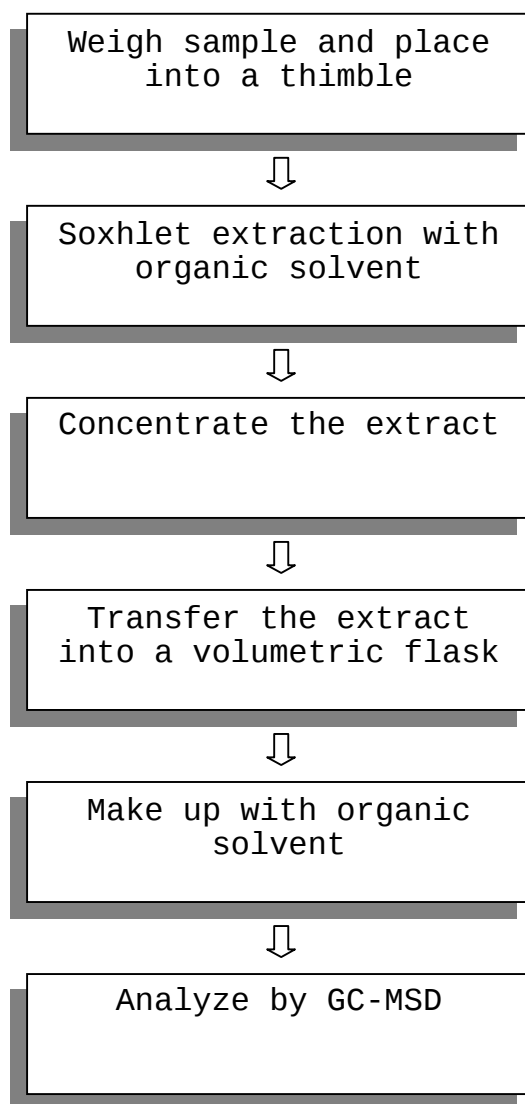
TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCDD (Hexabromocyclododecane) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287571

TESTS CONDUCTED



END OF REPORT



TEST REPORT

NUMBER: SHAH00287556

APPLICANT: LITTELFUSE, INC.
800 E. NORTHWEST HWY
ATTN: A. CESISTA/ K. BACILA

DATE: OCT 31, 2011

SAMPLE DESCRIPTION:

One (1) submitted sample said to be **Grey ink.**

Part Description : Ink - grey.

Part Number : 425909.

Date Sample Received : Oct.25, 2011.

Date Test Started : Oct.25, 2011.

TESTS CONDUCTED:

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

TO BE CONTINUED

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

MYRA LV
CHEMICAL LAB SENIOR MANAGER

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

STEPHEN TSANG
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED

1 PHTHALATE CONTENT TEST

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

<u>TESTED COMPOUND</u>	<u>RESULT (% ,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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE/COMPONENT

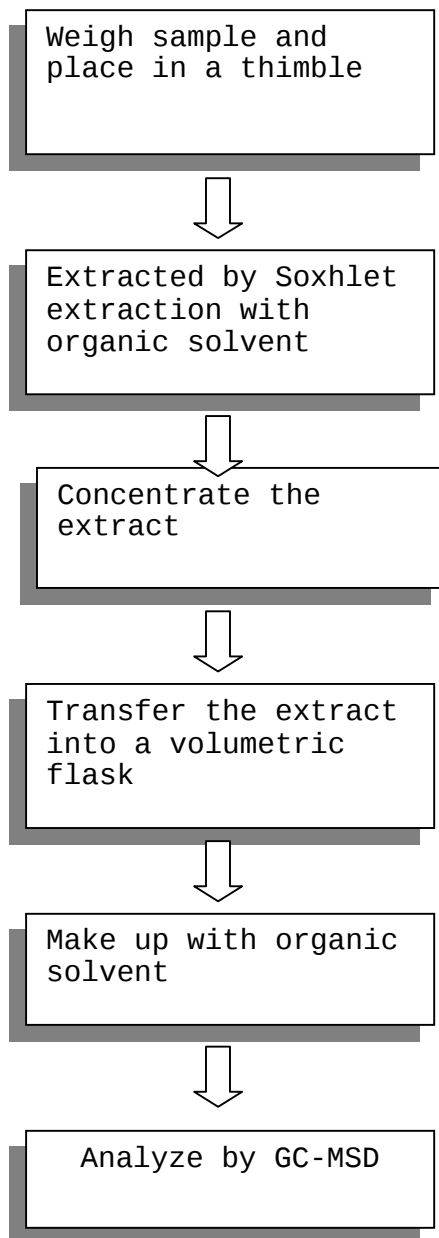
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED

2 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
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
 ND = Not detected

Responsibility Of Chemist : Ken He

(II) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<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

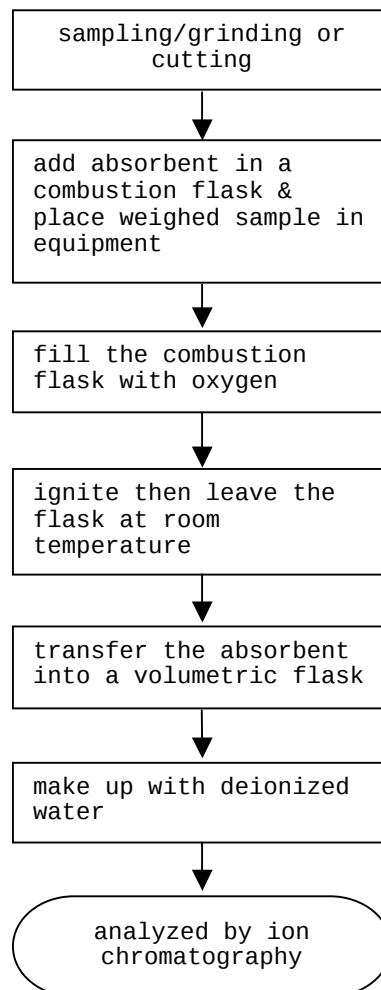
TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED

(III) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED

3 (I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED

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

Responsibility Of Chemist :Dent Fang / Ken He

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ehters (PBDEs)	0.1% (1000ppm)

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

TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED

(III) Test Method:

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr 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

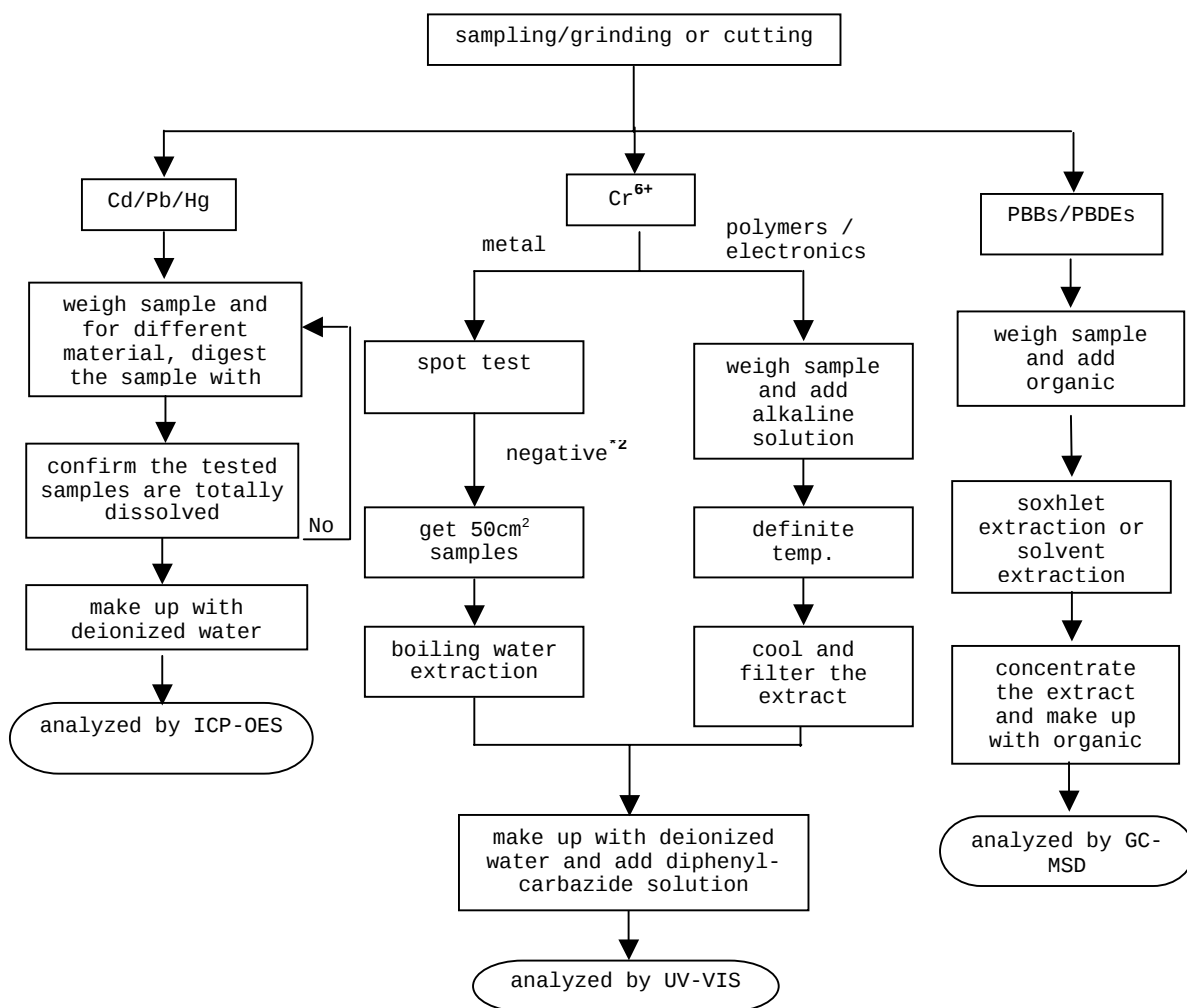
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED
 (IV) Measurement Flowchart:

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



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

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

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

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED

4 PHTHALATE CONTENT TEST

WITH REFERENCE TO ASTM D3421, BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS.

	RESULT (% , w/w)	LIMIT (% , w/w) (MAX.)
DIBUTYL 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

% = PERCENTAGE BASED ON DRY WEIGHT OF SAMPLE/COMPONENT.

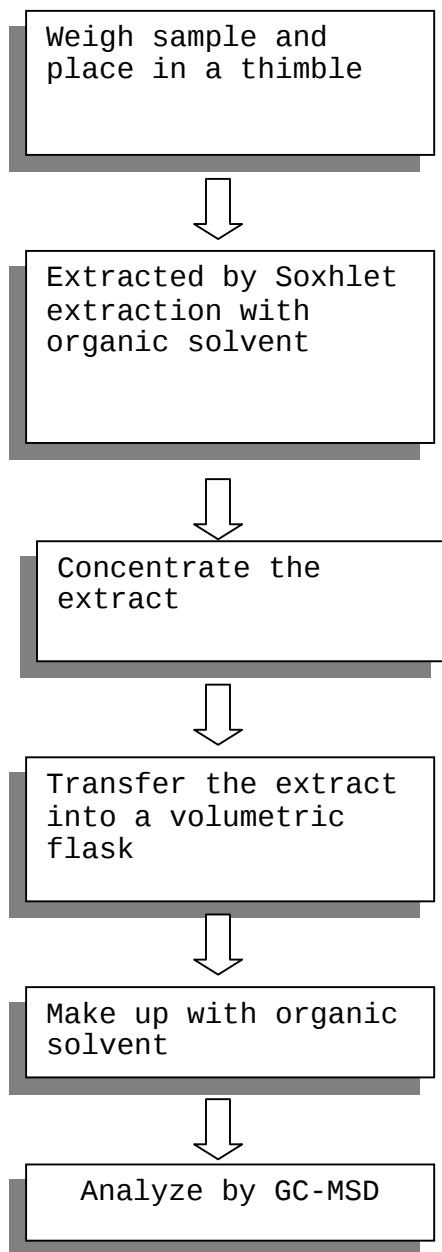
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED

5 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

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

DATE SAMPLE RECEIVED : OCT.25, 2011

TESTING PERIOD : OCT.25, 2011 TO OCT.28, 2011

TO BE CONTINUED

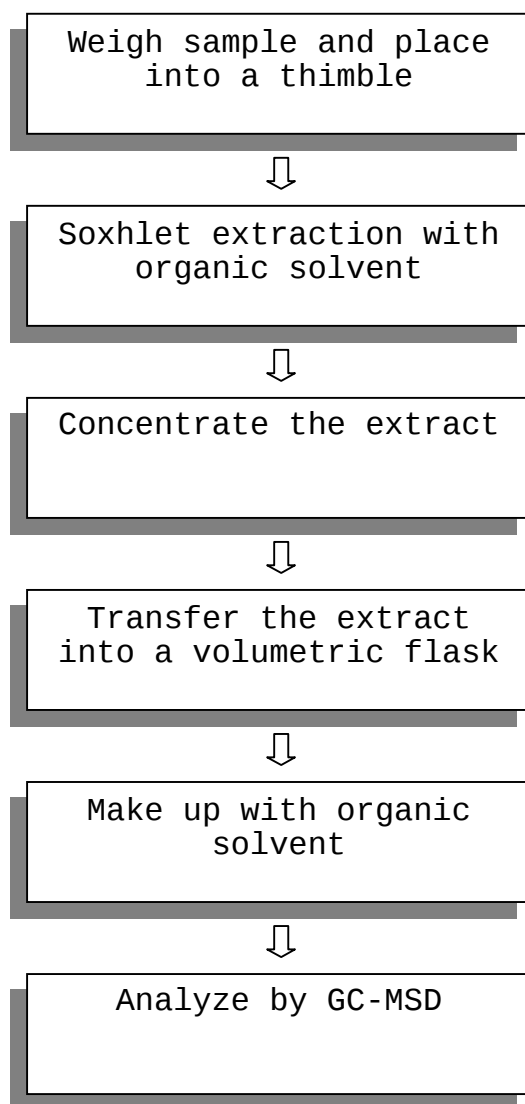
TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCDD (Hexabromocyclododecane) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00287556

TESTS CONDUCTED



END OF REPORT