



ICP Test Report Certification Packet

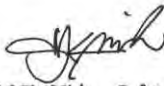
Company name: Littelfuse, Inc.

Product Series: 5x20 Fuse

Product #: 215xxxXP

Issue Date: December 27, 2012

It is hereby certified by Littelfuse, Inc. that there is neither RoHS (EU Directive 2002/95/EC, 2011/65/EU)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes. In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by: 
KRISTEEN BACILA

<Global EHS Engineer >

(1) Parts, sub-materials and unit parts

This document covers the 5x20 Fuse RoHS-Compliant series products manufactured by Littelfuse, Inc.

< Raw Materials Used
Please see Table 1

(2) The ICP data on all measurable substances

Please see appropriate pages as identified in Table 1

Remarks :

Table 1: List of Raw Materials covered by this report

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	C910510/ 910-553	Cap (Copper Shell) Base & Plating	3-6
2	910-556	Cap Base Cap Plating	7-10 11-13
3	YJ50/YJM (909-449)	Ceramic Body	14-24
4	11-0595 (082xxx)	Tinned Wire – Cu99.9MSn	25-30
5	0042xx	Tinned Wire – Cu Clad (CuNi44 Sn)	31-37
6	687xxx-001	Silver Plated Wire- Ag-Cu Sn Plated	38-43
7	648901	Yarn	44-52
8	YT-09 (195116)	Flux	53-57
9	YTW102 (692539-002)	Solder	58-62
10	YTW206 (692529)	Solder	63-67
11	934-073, C030210 934-077, 934-078, 934-084,934-085, 934-089 , C030204	Overcaps – Fuses Copper Shell (base and plating)	68-83 84-87
12	EP608 (087355)	HMA-Glue (Epoxy Adhesive)	88-99
13	091250	Sand Filler	100-106
14	091251	Sand Filler	107-113
15	091254	Sand Filler	114-120
16	425900	Ink-Orange	121-131
17	425901	Ink- Red	132-142
18	425902	Ink-Black	143-153
19	425903	Ink-Yellow	154-164
20	425904	Ink-Blue	165-175
21	425906	Ink-Brown	176-186
22	425907	Ink-Green	187-197
23	425909	Ink-Grey	198-208
24	425911	Ink-Violet	209-219
25	425913	Pale Blue Ink	220-230
26	C610(909-532)	Ceramic Tube KER610	231-254

TEST REPORT

NO.: A002R121008024-1R02

Date: Oct.10, 2012

Page 1 of 4

Customer: SuZhou FuHong Electronic Industrial Co., Ltd.

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

Report on the submitted sample said to be

Sample name: Copper shell

Model: /

Item/Lot No.: /

Material: /

Buyer: /

Supplier: /

Manufacturer: /

Sample received date: Oct. 08, 2012

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

Testing Requested

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

Testing method:

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

Note:

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

Conclusion:

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

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

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

Project Leader: Maggie

Li Tingting, Maggie
Chemical Test Director

Reviewed by: Weikin

Wang Wexin, Weikin
Technical Director

Approved by: Mickey

Yuan Qi, Mickey
Lab Manager

TEST REPORT

NO.: A002R121008024-1R02

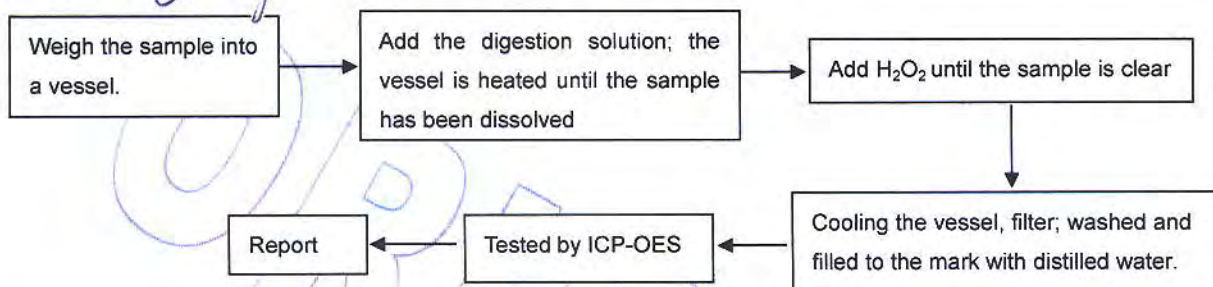
Date: Oct.10, 2012

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Test Flow:

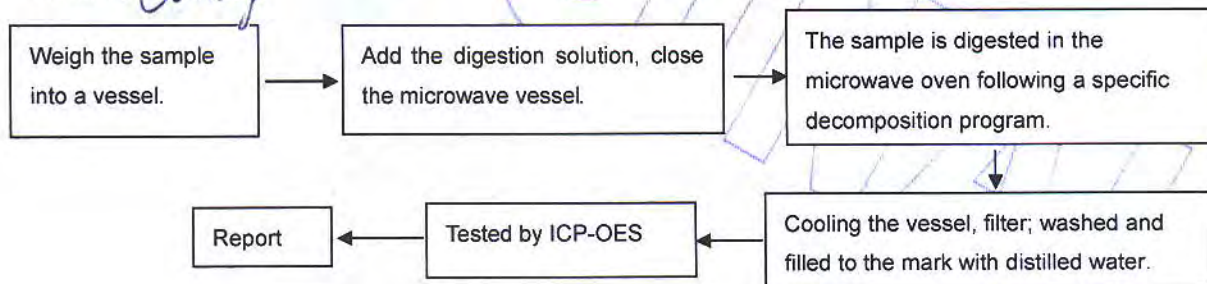
1. To Determine Lead, Cadmium Content: (Metal substrate)

Tested by: *Condy*



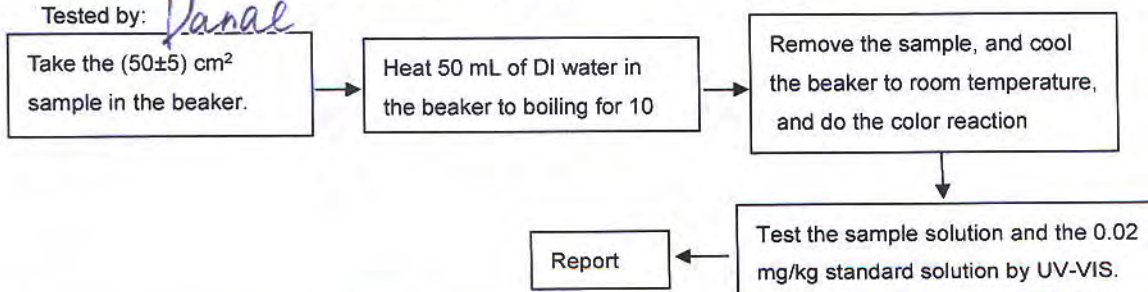
2. To Determine Mercury Content: (Metal substrate)

Tested by: *Condy*



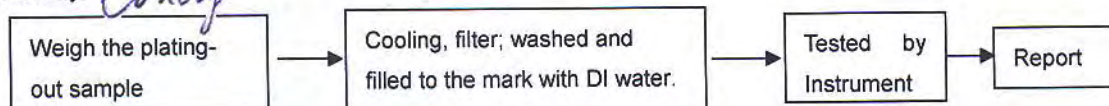
3. To Determine Hexavalent Chromium Content (boiling- water- extraction): (Metal substrate)

Tested by: *Danae*



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

Tested by: *Condy*



TEST REPORT

NO.: A002R121008024-1R02

Date: Oct.10, 2012

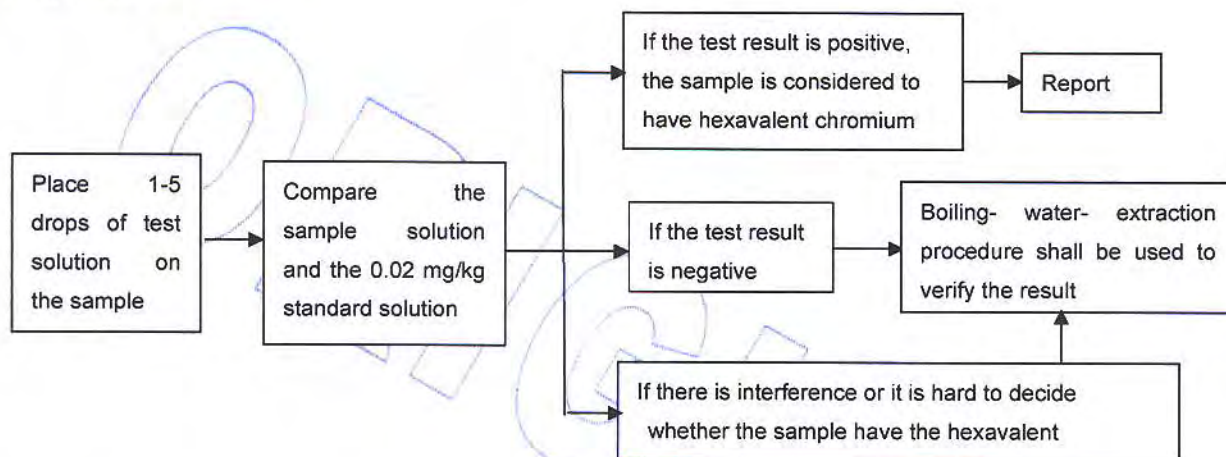
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5. To Determine Hexavalent Chromium Content in colorless and colored chromate coating on metals: (Plating)

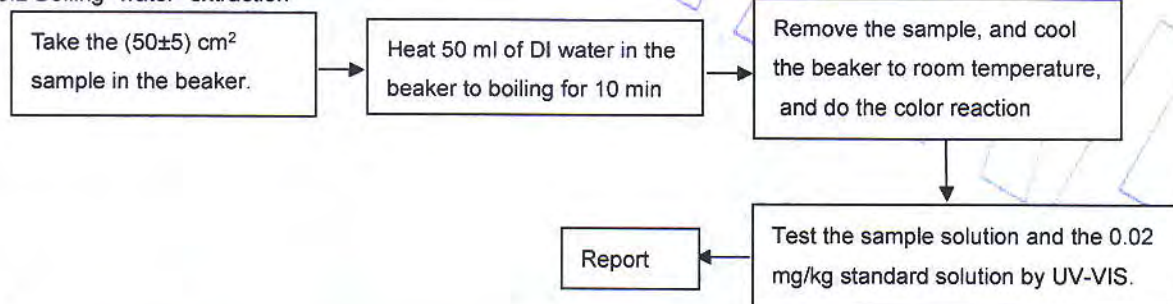
Tested by:

Danae

5.1 Spot-test



5.2 Boiling- water- extraction



Sample Description:

Code	Sample Description
1-1	Substrate
1-2	Plating

Test Results:

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

TEST REPORT

NO.: A002R121008024-1R02

Date: Oct.10, 2012

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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);

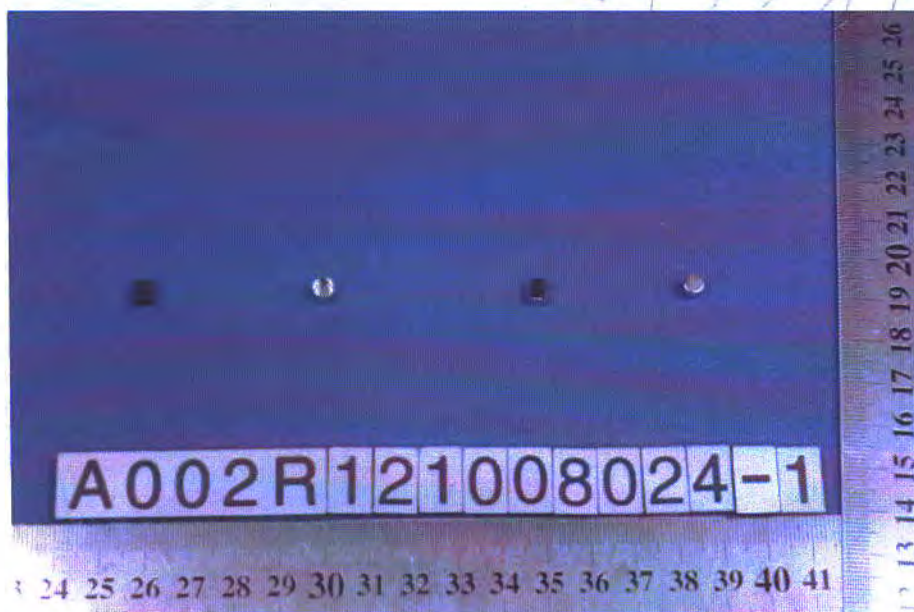
Uncertain= can not verify whether the sample have Hexavalent Chromium by spot-test.

(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

Report No. RLSZE001492100002

Page 1 of 4

Applicant DONGGUAN CITY XINHAI METAL PRODUCTS CO.,LTD
Address I 'ST WEIMING ROAD HENGZENG AV.XINAN COMMUNITY CHANGAN
TOWN DONGGUAN CITY GUANGDONG PROVINCE

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

Sample Name BASE OF CAP
Material BRASS H65
Sample Received Date Nov. 16, 2012
Testing Period Nov. 16, 2012 to Nov. 19, 2012

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

Test Method

Test Item(s)	Test Method	Measured Equipment(s)	MDL
Lead(Pb)	IEC 62321:2008 Ed.1 Sec.9	ICP-OES	2 mg/kg
Cadmium(Cd)	IEC 62321:2008 Ed.1 Sec.9	ICP-OES	2 mg/kg
Mercury(Hg)	IEC 62321:2008 Ed.1 Sec.7	ICP-OES	2 mg/kg
Hexavalent Chromium(Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis	/

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

Tested by

Rick Li

Reviewed by

Vargan He

Approved by

Danny Liu

Date

Nov. 19, 2012

Danny Liu

Technical Manager

No. 11033098

Centre Testing International (Shenzhen) Co., Ltd. Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China

Test Report

Report No. RLSZE001492100002

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Test Result(s)

Tested Item(s)	Result
Lead(Pb)	13 mg/kg
Cadmium (Cd)	N.D.
Mercury(Hg)	N.D.
Hexavalent Chromium(Cr(VI))	Negative

Tested Sample/Part Description Metal base

Note: The sample had been dissolved totally tested for Lead, Cadmium, Mercury.
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million
-Negative = Absence of Cr(VI) , the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg with 50cm² sample surface area used.

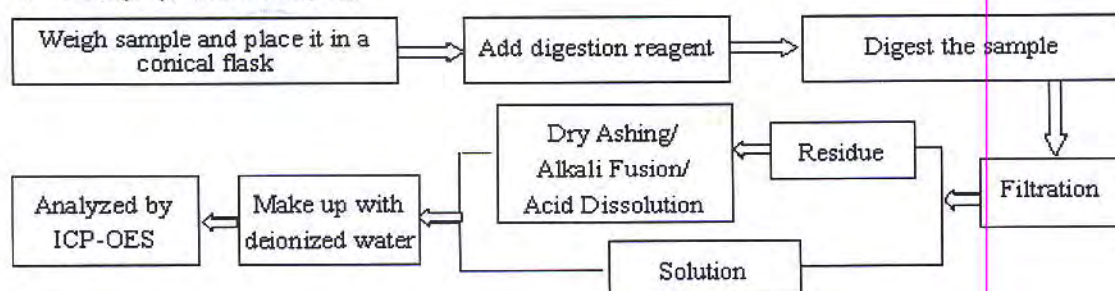
Test Report

Report No. RLSZE001492100002

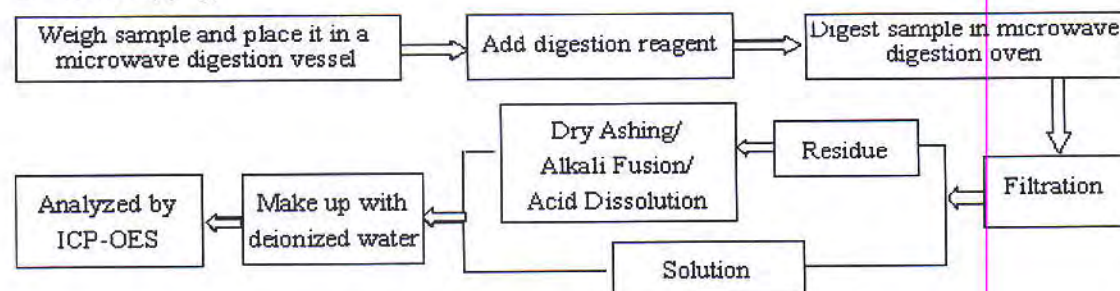
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Test Process

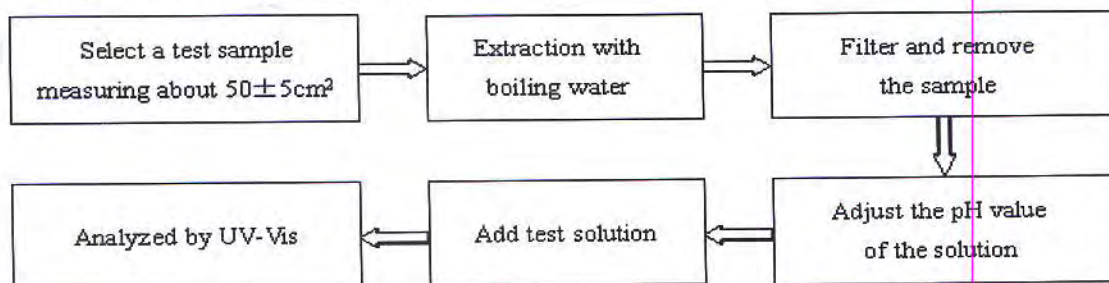
1. Lead(Pb), Cadmium(Cd)



2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))

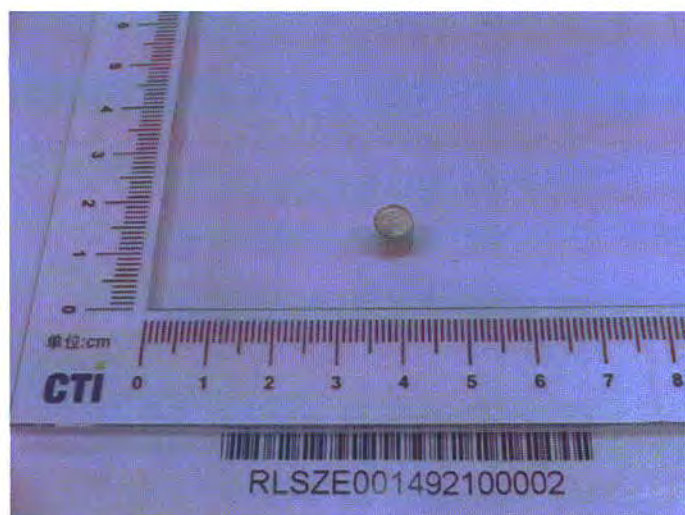


Test Report

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Photo(s) of the sample(s)



*** End of report ***

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

Test Report

Report No. RLSZE001492100001

Page 1 of 3

Applicant DONGGUAN CITY XINHAI METAL PRODUCTS CO.,LTD
Address I 'ST WEIMING ROAD HENGZENG AV.XINAN COMMUNITY CHANGAN
TOWN DONGGUAN CITY GUANGDONG PROVINCE

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

Sample Name SILVER COLOR PLATING OF CAP
Material Electrolytic Nickel
Sample Received Date Nov. 16, 2012
Testing Period Nov. 16, 2012 to Nov. 19, 2012

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

Test Method

Test Item(s)	Test Method	Measured Equipment(s)	MDL
Lead(Pb)	Refer to IEC 62321:2008 Ed.1	ICP-OES	2 mg/kg
Cadmium(Cd)	Refer to IEC 62321:2008 Ed.1	ICP-OES	2 mg/kg
Mercury(Hg)	Refer to IEC 62321:2008 Ed.1	ICP-OES	2 mg/kg
Hexavalent Chromium(Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis	/

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

Tested by

Rick Li

Reviewed by

Vangun He

Approved by

Danny Liu

Date

Nov. 19, 2012

Danny Liu

Technical Manager

No. 11033098

Centre Testing International (Shenzhen) Co., Ltd. Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China

Test Report

Report No. RLSZE001492100001

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Test Result(s)

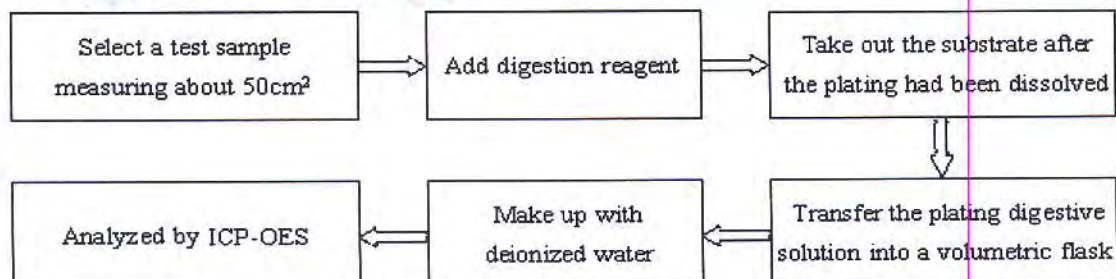
Tested Item(s)	Result
Lead(Pb)	N.D.
Cadmium (Cd)	N.D.
Mercury(Hg)	N.D.
Hexavalent Chromium(Cr(VI))	Negative

Tested Sample/Part Description Silvery plating

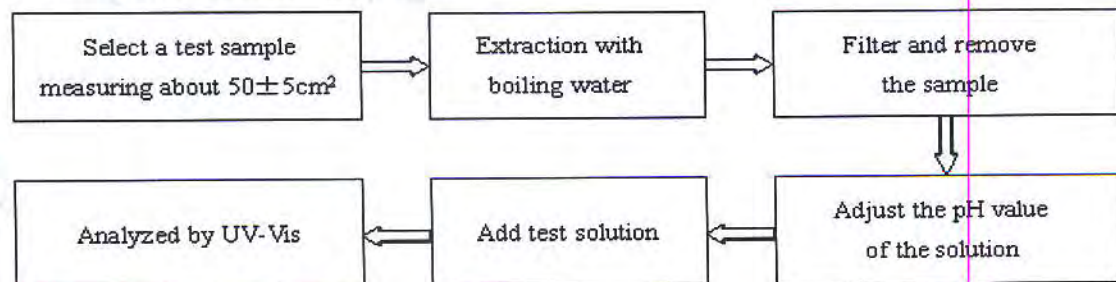
Note: The washed plating had been dissolved totally tested for Lead, Cadmium, Mercury.
 -MDL = Method Detection Limit
 -N.D. = Not Detected (<MDL)
 -mg/kg = ppm = parts per million
 -Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg with 50cm² sample surface area used.

Test Process

1. Lead(Pb), Cadmium(Cd), Mercury(Hg)



2. Hexavalent Chromium(Cr(VI))



Test Report

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Photo(s) of the sample(s)



*** End of report ***

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測試報告

Test Report

號碼(No.): CE/2012/37057 日期(Date): 2012/04/05 頁數(Page): 1 of 11

永晉電瓷股份有限公司 / YUEN JINN ELECTRICAL CERAMIC CO., LTD.

(永晉電瓷(蘇州)有限公司 / YUEN JINN ELECTRICAL CERAMIC (SUZHOU) CO., LTD.)

新北市樹林區豐林街40號 / NO. 40, FENG LIN ST., SHU LIN DIST., NEW TAIPEI CITY, TAIWAN

(江蘇省吳江市松陵鎮江陵西路 / JIANG LING WEST ROAD SONG LING TOWN WU JIANG CITY JIANG SU CHINA P. R. C.)



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) : CERAMIC BASE (陶瓷體)
 樣品型號(Style/Item No.) : YJ5B/YJM
 批號(Batch No.) : A28
 收件日期(Sample Receiving Date) : 2012/3/28
 測試期間(Testing Period) : 2012/3/28 TO 2012/04/05

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

結論(Conclusion) : 根據客戶所提供的樣品，其鎘、鉛、汞、六價鉻、多溴聯苯及多溴聯苯醚的測試結果符合 RoHS指令2002/95/EC的更新指令2011/65/EU之要求 (Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Hexavalent Chromium Cr(VI), PBBs and PBDEs comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.)


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

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測試報告

Test Report

號碼(No.): CE/2012/37057 日期(Date): 2012/04/05 頁數(Page): 1 of 11

永晉電瓷股份有限公司 / YUEN JINN ELECTRICAL CERAMIC CO., LTD.



(永晉電瓷(蘇州)有限公司 / YUEN JINN ELECTRICAL CERAMIC (SUZHOU) CO., LTD.)

新北市樹林區豐林街40號 / NO. 40, FENG LIN ST., SHU LIN DIST., NEW TAIPEI CITY, TAIWAN

(江蘇省吳江市松陵鎮江陵西路 / JIANG LING WEST ROAD SONG LING TOWN WU JIANG CITY JIANG SU CHINA P. R. C.)

測試結果(Test Results)

測試部位(PART NAME)No.1 : 白色陶瓷 (WHITE CERAMIC)

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)	法規 限值 (Limit)
				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.	100
鉛 / Lead (Pb)	mg/kg		2	16	1000
汞 / Mercury (Hg)	mg/kg		2	n.d.	1000
六價鉻 / Hexavalent Chromium Cr(VI)	mg/kg	參考IEC 62321: 2008方法, 以UV-VIS檢測。 / With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.	1000
六溴環十二烷 / Hexabromocyclododecane (HBCDD) (CAS No.: 25637-99-4)	mg/kg	參考US EPA 3540C方法, 以氣相層析/質譜儀檢測。 / With reference to US EPA 3540C method. Analysis was performed by GC/MS.	5	n.d.	-
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(鈹) / 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(鈹)含量。 / With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.	-
鄰苯二甲酸甲苯基丁酯 / BBP (Benzyl butyl phthalate) (CAS No.: 88-68-7)	%	參考EN 14372, 以氣相層析/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-

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測試報告

Test Report

號碼(No.): CE/2012/37957 日期(Date): 2012/04/05 頁數(Page): 3 of 11

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新北市樹林區豐林街40號 / NO. 40, FENG LIN ST., SHU LIN DIST., NEW TAIPEI CITY, TAIWAN

(江蘇省吳江市松陵鎮江陵西路 / JIANG LING WEST ROAD SONG LING TOWN WU JIANG CITY JIANG SU CHINA P. R. C.)



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)	法規 限值 (Limit)
				No.1	
鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	%	參考EN 14372, 以氣相層析/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0)	%	參考EN 14372, 以氣相層析/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.	-
鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0)	%	參考EN 14372, 以氣相層析/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.	-
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	%	參考EN 14372, 以氣相層析/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	%	參考EN 14372, 以氣相層析/質譜儀檢測之。 / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	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)	mg/kg		50	n.d.	-
鹵素(溴) / Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg		50	n.d.	-
鹵素(碘) / Halogen-Iodine (I) (CAS No.: 14352-44-8)	mg/kg		50	n.d.	-

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測試報告

Test Report

號碼(No.): CE/2012/37057 日期(Date): 2012/04/05 頁數(Page): 4 of 11

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(江蘇省吳江市松陵鎮江陵西路 / JIANG LING WEST ROAD SONG LING TOWN WU JIANG CITY JIANG SU CHINA P. R. C.)



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	法規 限值 (Limit)
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.	1000
一溴聯苯 / Monobromobiphenyl	mg/kg		5	n.d.	-
二溴聯苯 / Dibromobiphenyl	mg/kg		5	n.d.	-
三溴聯苯 / Tribromobiphenyl	mg/kg		5	n.d.	-
四溴聯苯 / Tetrabromobiphenyl	mg/kg		5	n.d.	-
五溴聯苯 / Pentabromobiphenyl	mg/kg		5	n.d.	-
六溴聯苯 / Hexabromobiphenyl	mg/kg		5	n.d.	-
七溴聯苯 / Heptabromobiphenyl	mg/kg		5	n.d.	-
八溴聯苯 / Octabromobiphenyl	mg/kg		5	n.d.	-
九溴聯苯 / Nonabromobiphenyl	mg/kg		5	n.d.	-
十溴聯苯 / Decabromobiphenyl	mg/kg		5	n.d.	-
多溴聯苯醚總和 / Sum of PBDEs	mg/kg		-	n.d.	1000
一溴聯苯醚 / Monobromodiphenyl ether	mg/kg		5	n.d.	-
二溴聯苯醚 / Dibromodiphenyl ether	mg/kg		5	n.d.	-
三溴聯苯醚 / Tribromodiphenyl ether	mg/kg		5	n.d.	-
四溴聯苯醚 / Tetrabromodiphenyl ether	mg/kg		5	n.d.	-
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg		5	n.d.	-
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg		5	n.d.	-
七溴聯苯醚 / Heptabromodiphenyl ether	mg/kg		5	n.d.	-
八溴聯苯醚 / Octabromodiphenyl ether	mg/kg		5	n.d.	-
九溴聯苯醚 / Nonabromodiphenyl ether	mg/kg		5	n.d.	-
十溴聯苯醚 / Decabromodiphenyl ether	mg/kg		5	n.d.	-

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)

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測試報告

Test Report

號碼(No.): CE/2012/37057 日期(Date): 2012/04/05 頁數(Page): 5 of 11

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PFOS參考資訊(Reference Information): 持久性有機污染物 POPs - (EU) 757/2010

PFOS濃度在物質或製備中不得超過0.001%(10ppm), 在半成品、成品或零部件中不得超過0.1%(1000ppm), 在紡織品或塗層材料中不得超過1µg/m²。

(Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1µg/m².)

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測試報告

Test Report

號碼(No.): CR/2012/37057 日期(Date): 2012/04/05 頁數(Page): 6 of 11

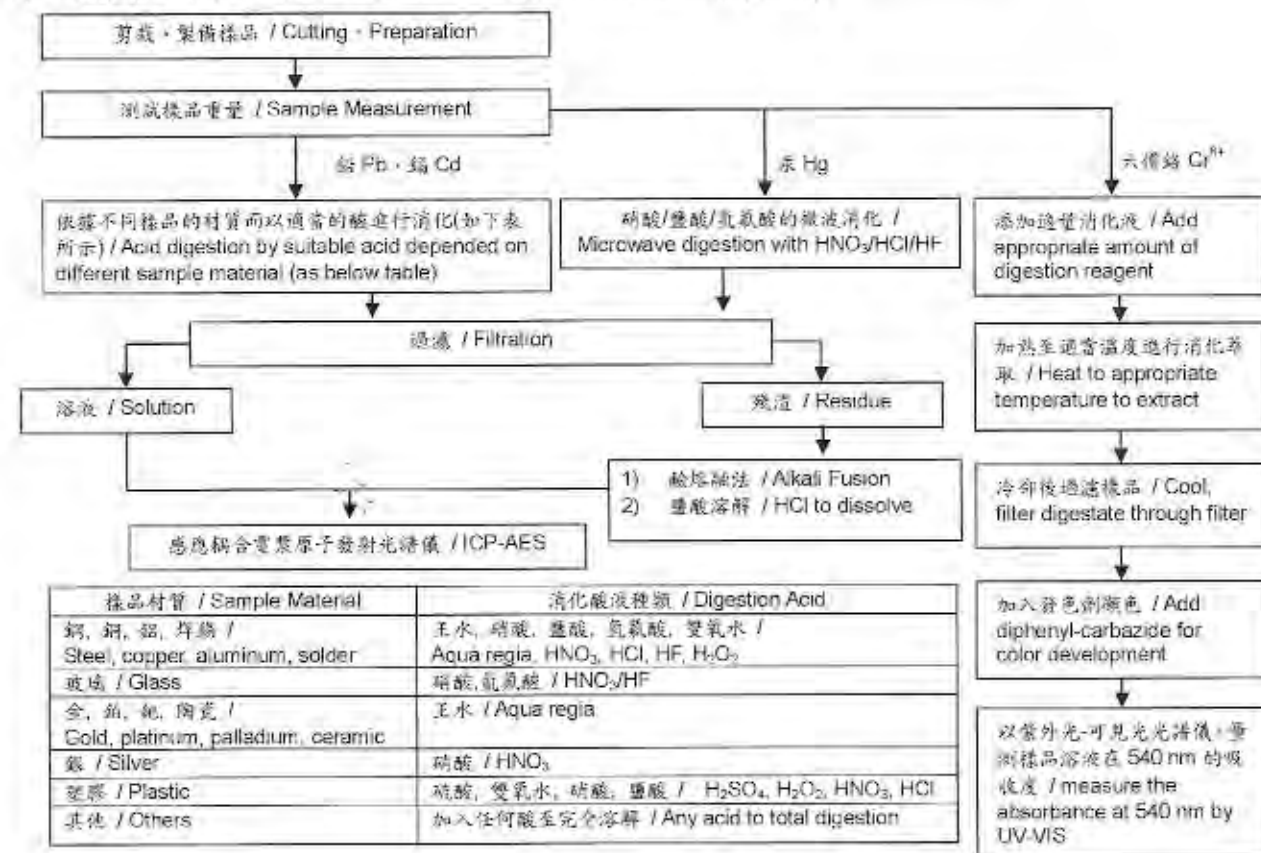
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)
- 2) 測試人員：楊登偉 / Name of the person who made measurement: Climhgreat Yang
- 3) 測試負責人：張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



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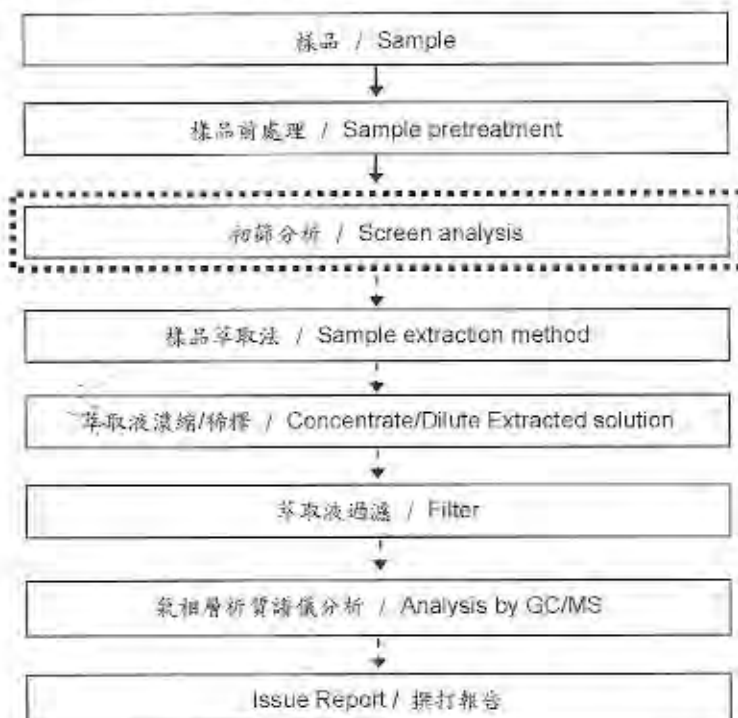
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分析流程圖 / Analytical flow chart

- 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
- 【測試項目(Test Items): 多溴聯苯/多溴聯苯醚、四溴雙酚-A雙 / PBB/PBDE, TBBP-A-bis】

固定測試程序 / First testing process → 選擇性篩檢程序 / Optional screen process ■■■■ 確認程序 / Confirmation process →



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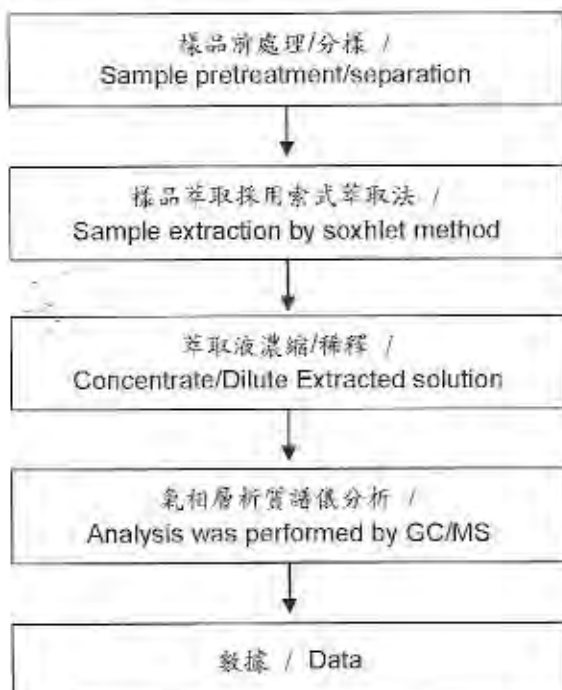


索式萃取分析流程圖 /

Analytical flow chart of Soxhlet extraction (GC/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: 可塑劑、苯並三唑類化合物、六溴環十二烷、壬酚、單甲基二溴二苯基甲烷、有機磷化合物 / Test Items: Phthalate, Benzotriazole, HBCDD, NP, DBBT, Organic phosphorus compounds】



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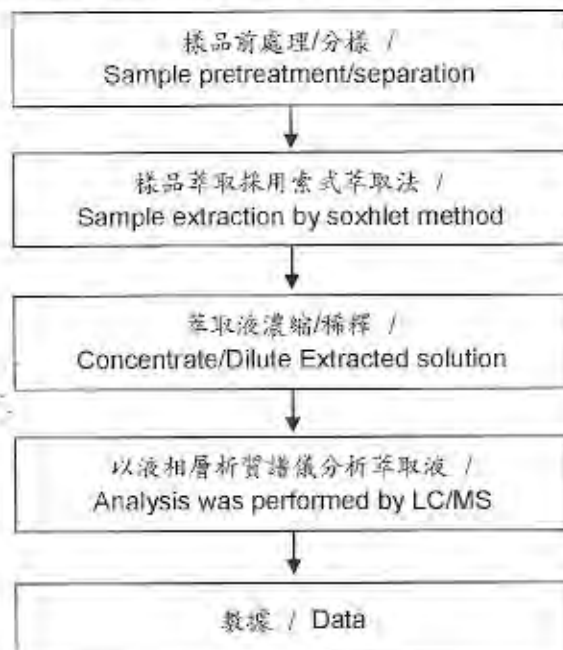
索式萃取分析流程圖 /

Analytical flow chart of Soxhlet extraction (LC/MS) procedure

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

【測試項目: 全氟辛烷磺酸/全氟辛酸(銨)、苯並三唑類化合物 /

Test Items: PFOS/PFOA, Benzotriazole】



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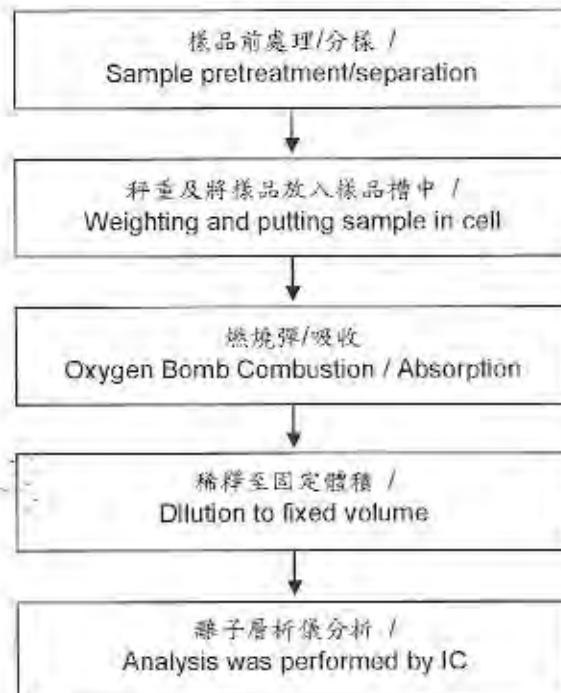
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鹵素分析流程圖 / Analytical flow chart of halogen content

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



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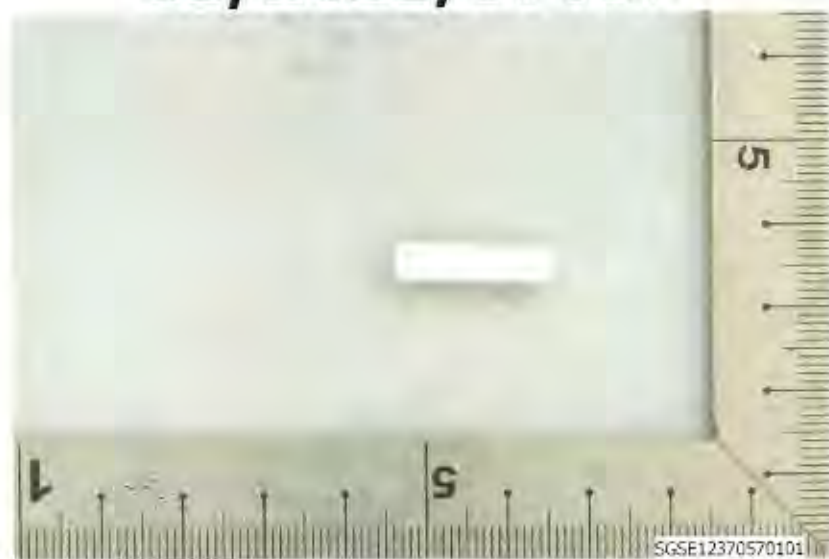
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* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。*

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

CE/2012/37057



** 報告結尾 (End of Report) **

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

Polyfil AG
Gina Gregorio
Oberallmendstrasse 20A

6300 Zug / Switzerland

Fürth, 2012-12-19

Test report No. FUHL1236932

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

Sample description: Cu99.9MSn wire; part no. 450229862; batch 1389386

Arrival in lab: 2012-012-04; Period of XRF analysis incl. sample preparation and photo documentation: 2012-12-07 – 2012-12-10
Head of Inorganic Lab: Claudia List

Copying this test report is permitted only in agreement with the contracted lab. The test results refer only to the tested item.
This report consists of 6 page(s).
The test methods signed with * are not listed in the attachment of the accreditation certificate.

Conclusion based on tested item

Test order	Status
testing according to the RoHS directive 2011/65/EC	conform [°]

[°] Please see overview of test results

- Test results see next pages -

Sample description: Cu99.9MSn wire; part no. 450229862; batch 1389386

nM = non Metal

M = Metal

cM = composite Material

List of component parts:

Sample No.	Part No.	Material	Description
236932	1	M	Cu99.9MSn wire; part no. 450229862; batch 1389386

Sample description: Cu99.9MSn wire; part no. 450229862; batch 1389386

Comment

LOD = Limit of Detection
 BL = Below Limit
 OL = Over Limit
 X = Inconclusive, further test necessary
 σ = Standard deviation

 CS = Composite sample

Remark:

Results were obtained by EDXRF for primary screening. Additional chemical testing using ICP (for Cd, Pb), AAS (for Hg), IC-UC/VIS (for CrVI) and GC/MS (for PBBs/PBDEs) are recommended, if the concentration exceeds the below warning value according to IEC 62321.

Element	Unit	non - metal	metal
Cd	mg / kg	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$
Pb	mg / kg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$
Hg	mg / kg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$
Br	mg / kg	$BL \leq (300-3\sigma) < X$	--
Cr	mg / kg	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$

Element	Unit	composite material
Cd	mg / kg	$LOD < X < (150+3\sigma) \leq OL$
Pb	mg / kg	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	mg / kg	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	mg / kg	$BL \leq (250-3\sigma) < X$
Cr	mg / kg	$BL \leq (500-3\sigma) < X$

Sample description: Cu99.9MSn wire; part no. 450229862; batch 1389386

1. XRF screening

Method: XRF according to IEC 62321:2008*

Sample No.	Part No.	Pb	Hg	Cd	Cr _{total}	Br	Status
236932	1	BL	BL	BL	BL	--	conform

Comment:

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

Intertek Consumer Goods GmbH

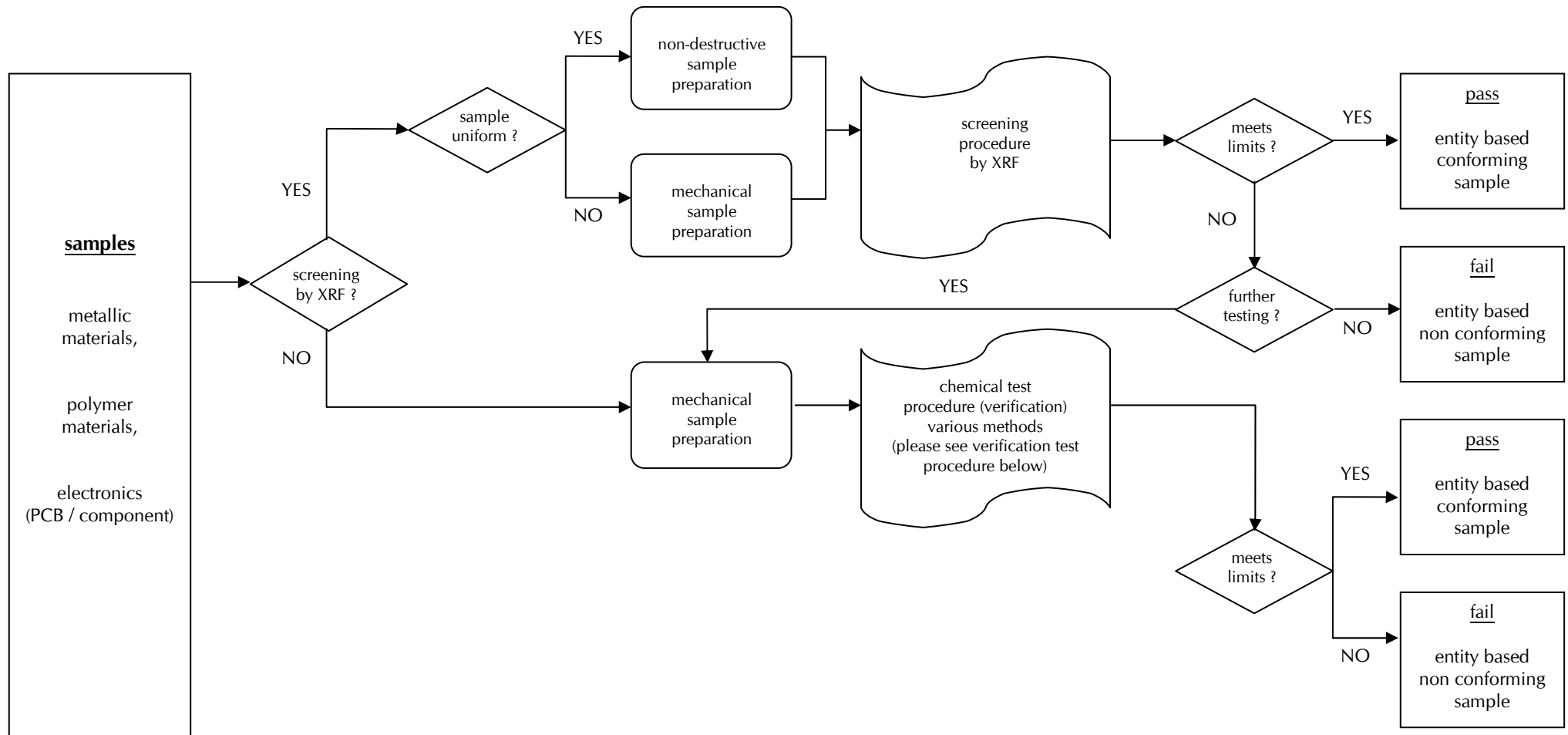


Prüfleitung / Lab Manager

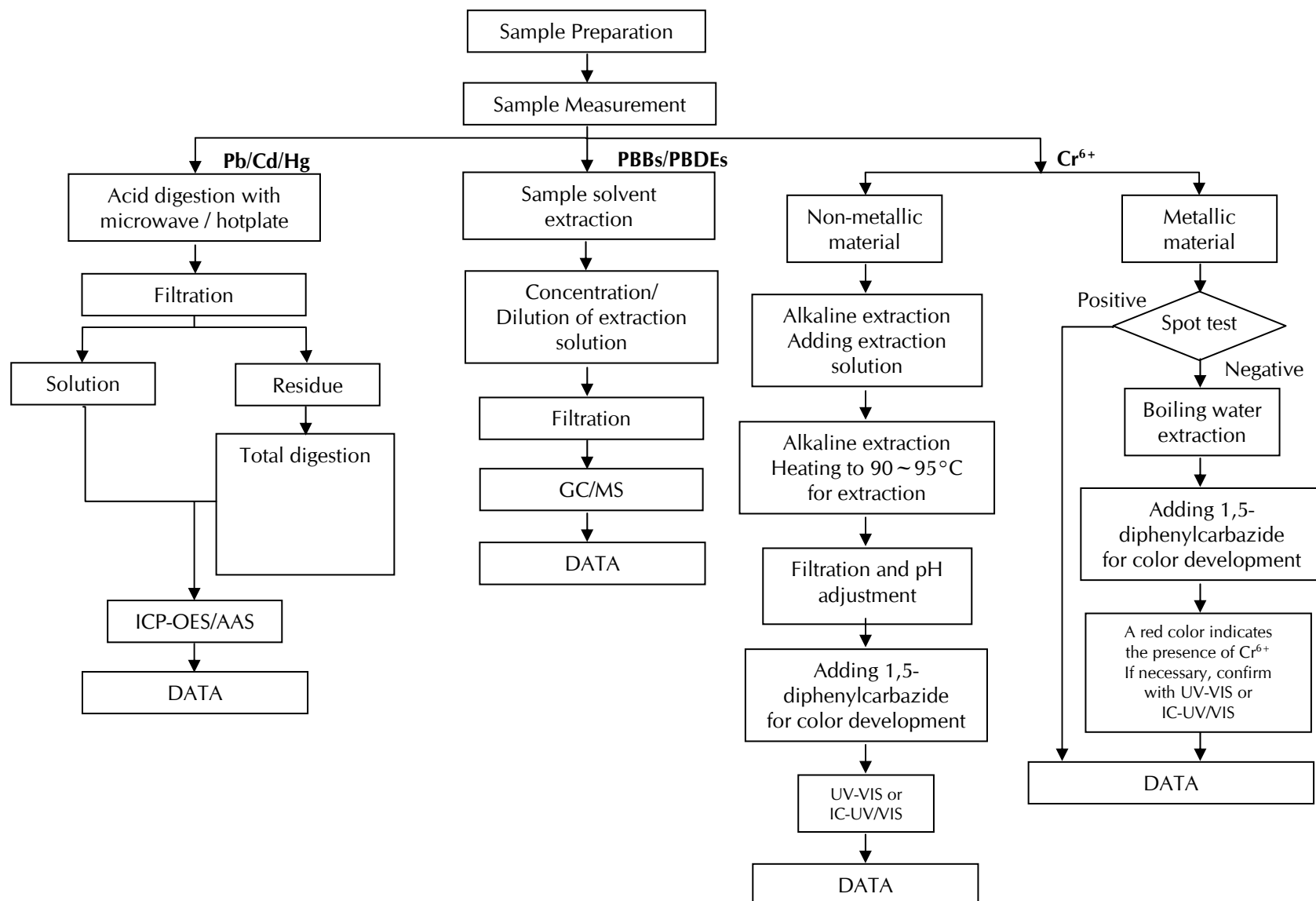
☐ A. Breunig, ☐ K. Grönhardt, ☐ Dr. K. Laue-Schuler, ☒ C. List, ☐ D. Löw
☐ R. Micolay, ☐ M. Neumeister, ☐ Dr. R. Rätze, ☐ K. Scharrer, ☐ M. Tutsch

- Flow charts see next page(s) -

Test procedure



Verification test procedure





TEST REPORT

NUMBER: SHAH00300774

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

DATE: FEB 02, 2012

SAMPLE DESCRIPTION:

One(1) submitted sample said to be **wire with plating**.

Part Description : Wire(Elschukon).

Part Number : 004206.

Date Sample Received : Jan.17, 2012.

Date Test Started : Jan.17, 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

JACOB LIN
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00300774

TESTS CONDUCTED

(I) Test Result Summary :

<u>Testing Item</u>	<u>Result (ppm)</u>
	(1)
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	20
Mercury (Hg) content	ND
Chromium VI (Cr ⁶⁺) content (mg/kg with 50cm ²)	Negative (< 0.02)(#)

<u>Testing Item</u>	<u>Result (ppm)</u>
	(2)
Heavy Metal	
Cadmium (Cd) content/PLATING	ND
Lead (Pb) content/PLATING	238
Mercury (Hg) content/PLATING	ND
Chromium VI (Cr ⁶⁺) content (mg/kg with 50cm ²)/PLATING	Negative (< 0.02)(#)

Tested components:

- (1) Substrate
- (2) Plating

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

= Due to the insufficient sample area, reduced total sample surface of 10 cm² was used and the dilution factor was adjusted accordingly.

mg/kg with 50cm² = milligram per kilogram with 50 square centimetre

Negative = A negative test result indicated positive observation was not found at the time of testing.

Responsibility Of Chemist :Dent Fang / Ken He

TO BE CONTINUED



TEST REPORT

NUMBER: SHAH00300774

TESTS CONDUCTED

(II) RoHS Requirement:

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr 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: SHAH00300774

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 B, by boiling water extraction and determined by UV-Vis spectrophotometer.	0.02 mg/kg with 50cm ²

Remark: Reporting limit = Quantitation limit of analyte in sample

Date Sample Received : JAN.17, 2012

Testing Period : JAN.17, 2012 TO JAN.21, 2012

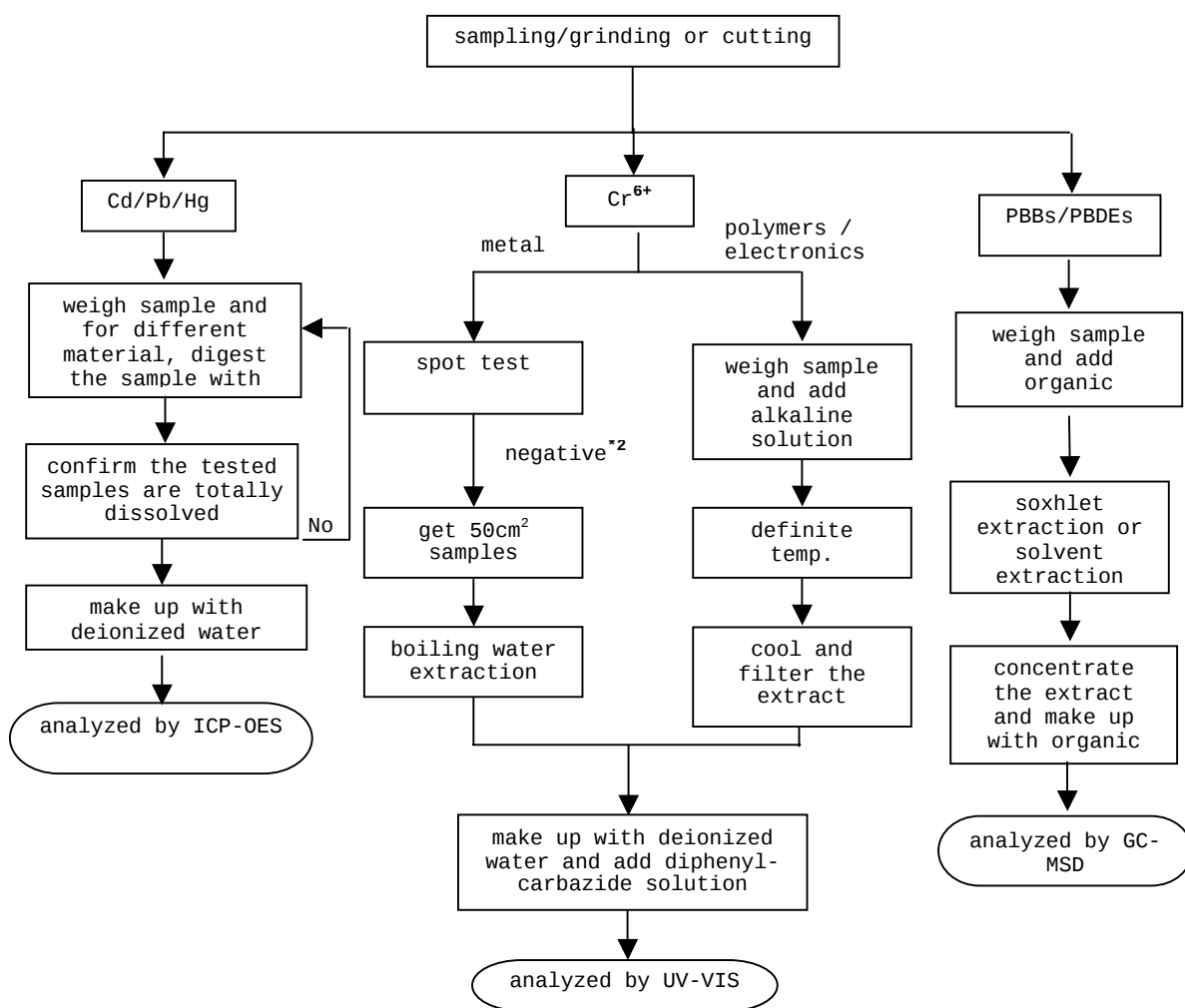
TO BE CONTINUED

TEST REPORT

NUMBER: SHAH00300774

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: SHAH00300774

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: SHAH00300774

TESTS CONDUCTED



END OF REPORT



TEST REPORT

NUMBER: SHAH00300757

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

DATE: FEB 02, 2012

SAMPLE DESCRIPTION:

One(1) submitted sample said to be **Wire with plating.**

Part Description : Wire(Polyil).

Part Number : 687279-001.

Date Sample Received : Jan.17, 2012.

Date Test Started : Jan.17, 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

JACOB LIN
GENERAL MANAGER

TEST REPORT

NUMBER: SHAH00300757

TESTS CONDUCTED

(I) Test Result Summary :

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

<u>Testing Item</u>	<u>Result (ppm)</u>
	(2)
Heavy Metal	
Cadmium (Cd) content/Plating	ND
Lead (Pb) content/Plating	72
Mercury (Hg) content/Plating	ND
Chromium VI (Cr ⁶⁺) content (mg/kg with 50cm ²)/Plating	Negative (< 0.02)(#)

Tested components:

- (1) Substrate
- (2) Plating

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

= Due to the insufficient sample area, reduced total sample surface of 10 cm² was used and the dilution factor was adjusted accordingly.

mg/kg with 50cm² = milligram per kilogram with 50 square centimetre

Negative = A negative test result indicated positive observation was not found at the time of testing.

Responsibility Of Chemist :Dent Fang / Ken He

Date Sample Received : Jan.17, 2012

Testing Period : Jan.21, 2012

To Be Continued

TEST REPORT

NUMBER: SHAH00300757

TESTS CONDUCTED

(II) RoHS Requirement:

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

(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 B, by boiling water extraction and determined by UV-Vis spectrophotometer.	0.02 mg/kg with 50cm ²

Remark: Reporting limit = Quantitation limit of analyte in sample

To Be Continued

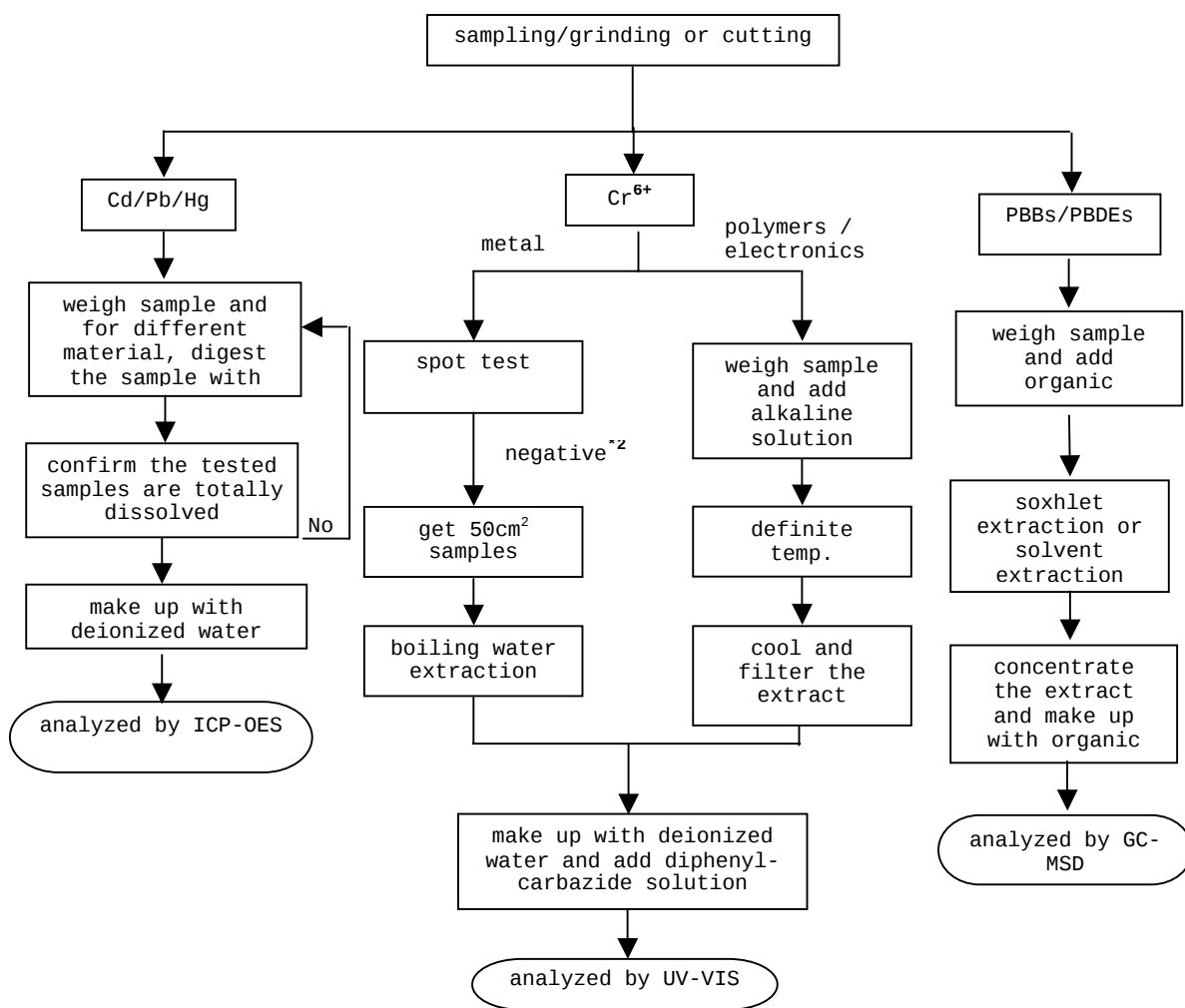
TEST REPORT

NUMBER: SHAH00300757

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: SHAH00300757

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: SHAH00300757

TESTS CONDUCTED



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

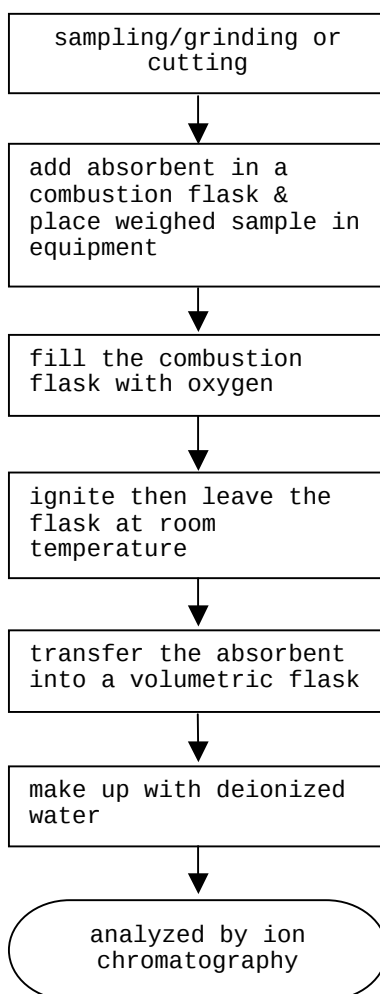
TEST REPORT

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 :

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: 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

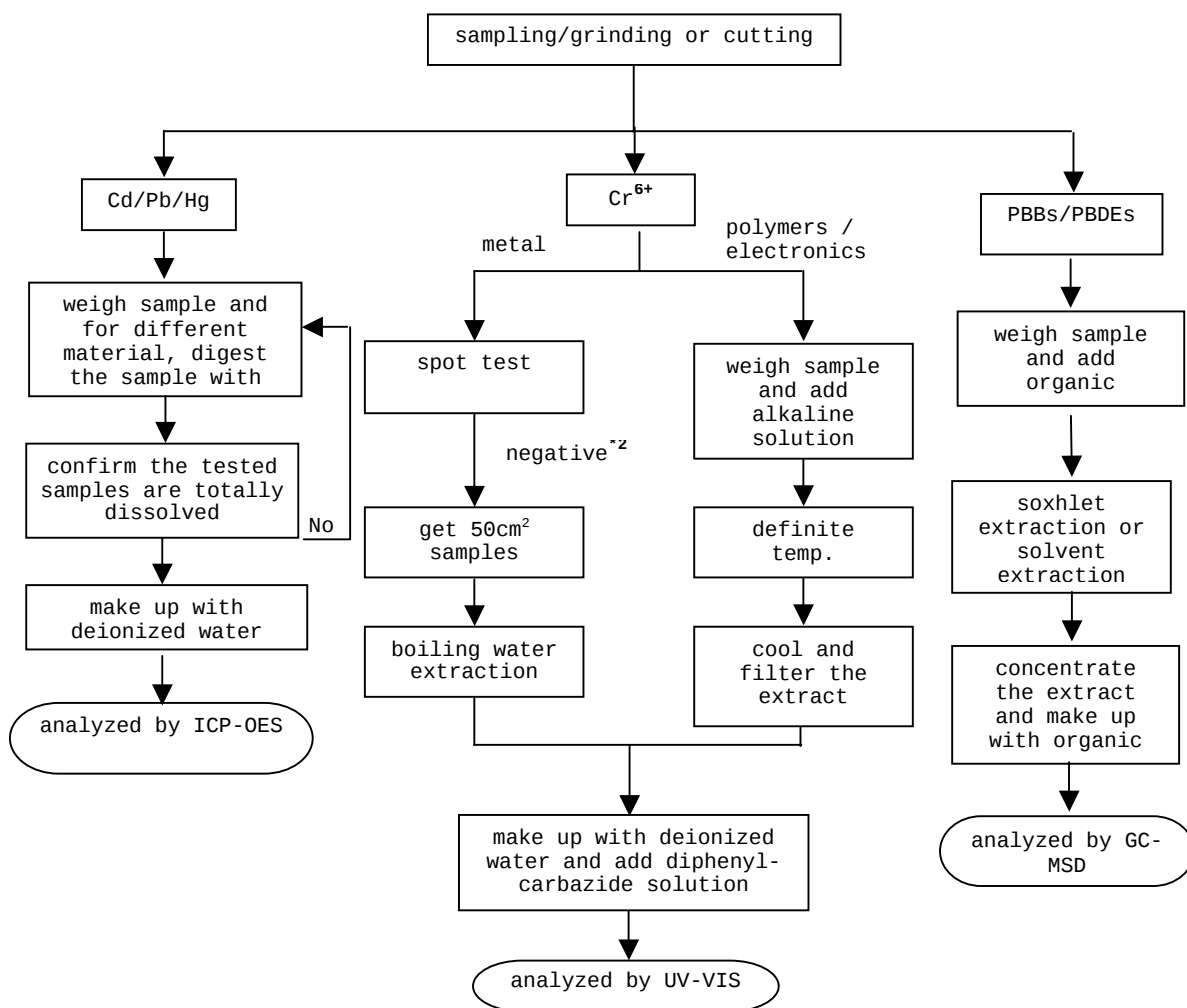
TO BE CONTINUED

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

No. SHAEC1216714751

Date: 25 Sep 2012

Page 1 of 5

ZHEJIANG ASIA GENERAL SOLDERING&BRAZING MATERIAL CO., LTD

XIHU INDUSTRIAL PARK, SANDUN, HANGZHOU CITY, ZHEJIANG, PROVINCE, CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : ORGANIC ACTIVE FLUX

SGS Job No. : SP12-028285 - SH
Part No. (P/N) : YT-09 (195116)
Composition : ORGANIC ACID、RESIN、WETTING AGENT、CORROSION INHIBITOR、SOLVENT
Date of Sample Received : 21 Sep 2012
Testing Period : 21 Sep 2012 - 25 Sep 2012
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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Test Report

No. SHAEC1216714751

Date: 25 Sep 2012

Page 2 of 5

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-167147.044	Orange liquid

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	044
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	2	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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

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T&E (86-21) 61402553 F&E (86-21) 64953679
HL: (86-21) 61402594 HL: (86-21) 54500353

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

Member of the SGS Group (SGS SA)



Test Report

No. SHAEC1216714751

Date: 25 Sep 2012

Page 3 of 5

Test Item(s)	Limit	Unit	MDL	044
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) Result shown is of the total weight of wet sample.

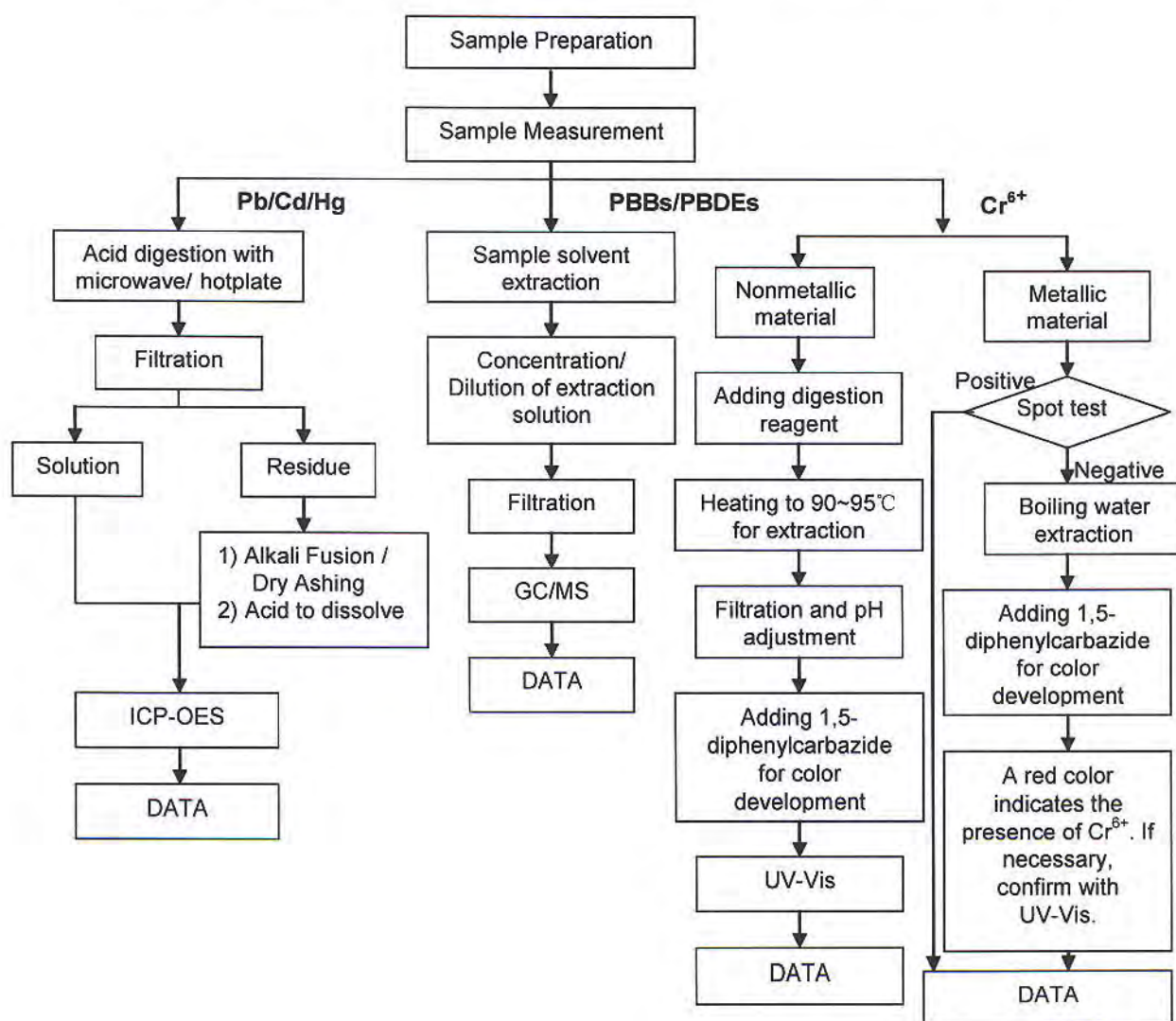
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Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.

ATTACHMENTS

RoHS Testing Flow Chart

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



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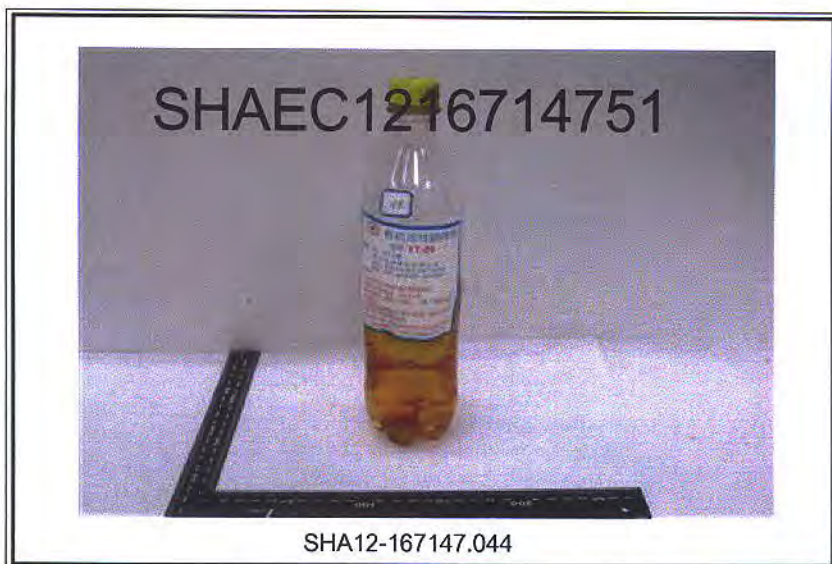
Test Report

No. SHAEC1216714751

Date: 25 Sep 2012

Page 5 of 5

Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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Test Report

No. SHAEC1216714750

Date: 25 Sep 2012

Page 1 of 5

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

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

SGS Job No. : SP12-028285 - SH
Part No. (P/N) : YTW102 (692539-002)
Composition : Sn2.0CuRE
Date of Sample Received : 21 Sep 2012
Testing Period : 21 Sep 2012 - 25 Sep 2012
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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Test Report

No. SHAEC1216714750

Date: 25 Sep 2012

Page 2 of 5

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-167147.043	Silvery wire

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

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

Test Item(s)	Limit	Unit	MDL	043
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	168
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	◇	Negative
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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Test Report

No. SHAEC1216714750

Date: 25 Sep 2012

Page 3 of 5

Test Item(s)	Limit	Unit	MDL	043
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

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

(2) ♦Spot-test:

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

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

♦Boiling-water-extraction:

Negative = Absence of Cr(VI) coating

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

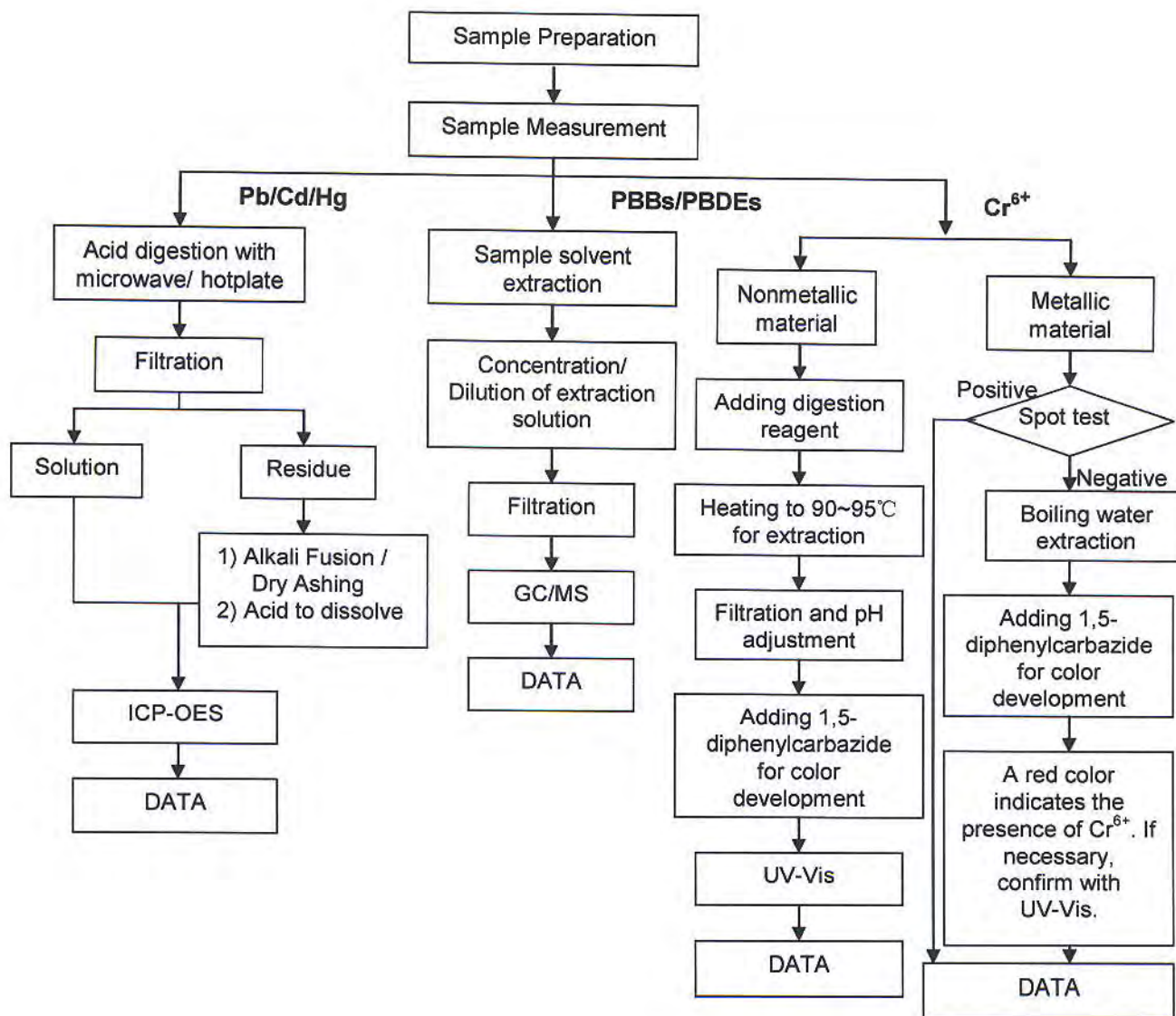
For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

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ATTACHMENTS

RoHS Testing Flow Chart

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



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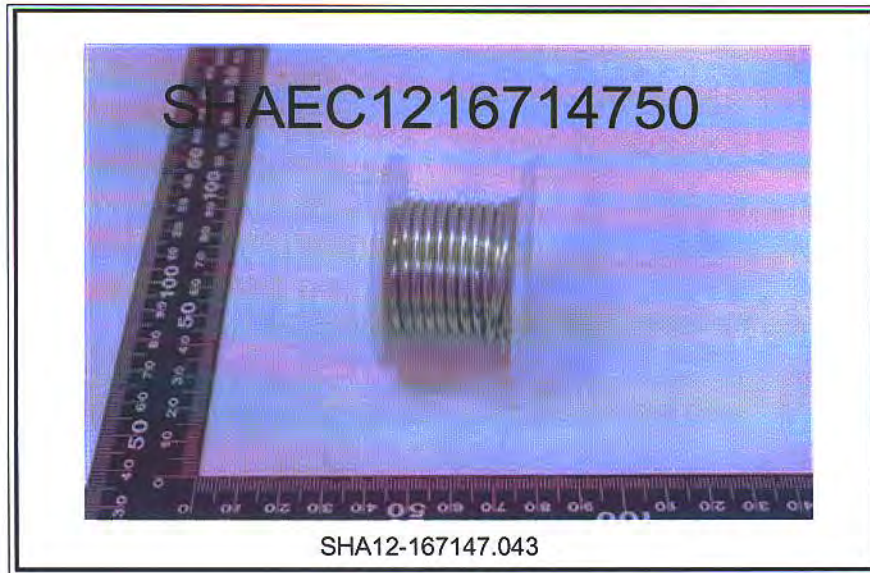
Test Report

No. SHAEC1216714750

Date: 25 Sep 2012

Page 5 of 5

Sample photo:



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*** End of Report ***

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Test Report

No. SHAEC1216714738

Date: 25 Sep 2012

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

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

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

Signed for and on behalf of
SGS-CSTC Ltd.



Fan Jingjie, JJ
Approved Signatory

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Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.

Test Report

No. SHAEC1216714738

Date: 25 Sep 2012

Page 2 of 5

Test Results :

Test Part Description :

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

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

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

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

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Test Report

No. SHAEC1216714738

Date: 25 Sep 2012

Page 3 of 5

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

Notes :

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

(2) ◇Spot-test:

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

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

◇Boiling-water-extraction:

Negative = Absence of Cr(VI) coating

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

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

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Testing Center

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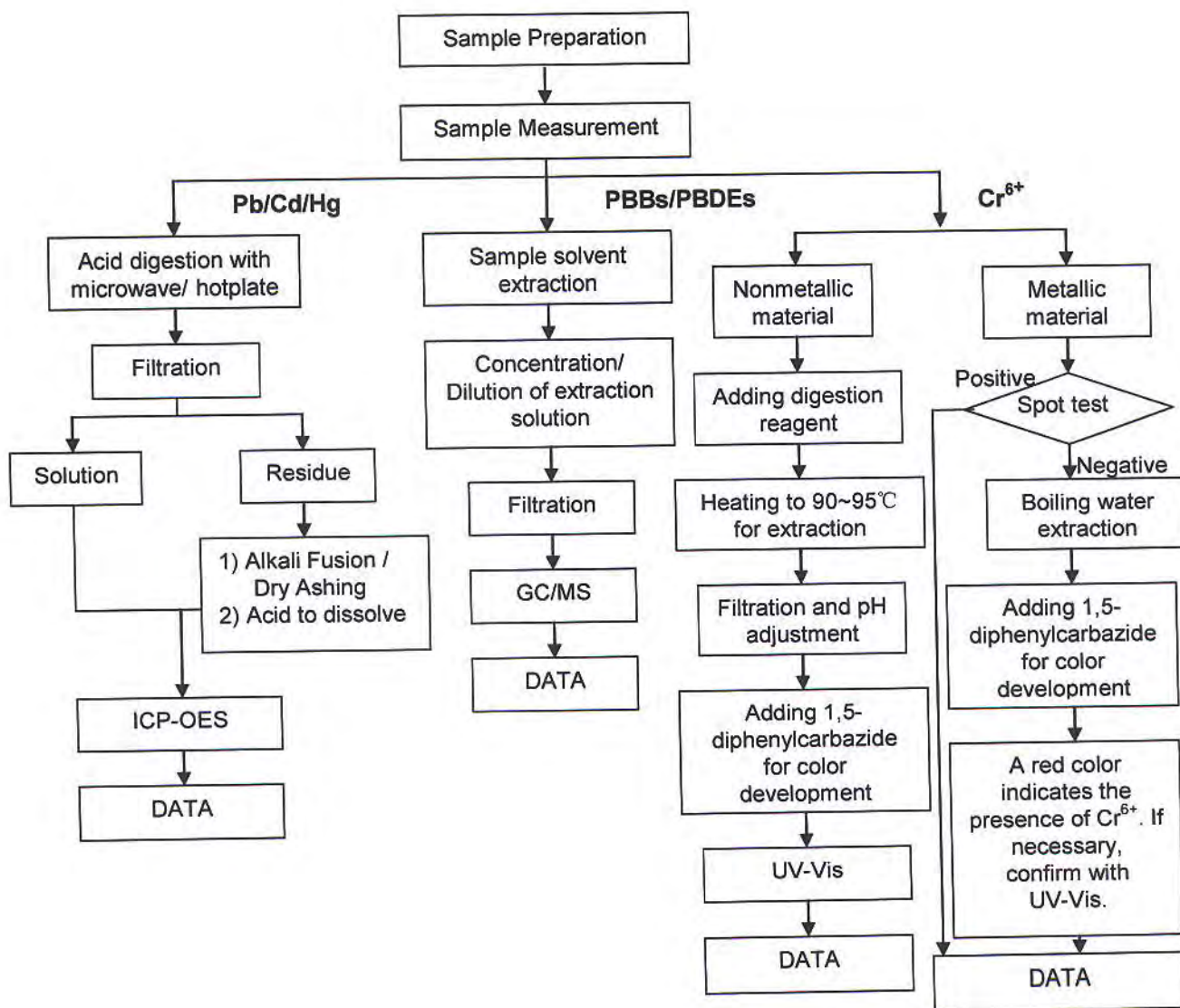
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HL: (86-21) 61402594 HL: (86-21) 54500353

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e sgs.china@sgs.com

ATTACHMENTS

RoHS Testing Flow Chart

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



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Test Report

No. SHAEC1216714738

Date: 25 Sep 2012

Page 5 of 5

Sample photo:



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Test Report

No. SHAEC1207780402

Date: 22 May 2012

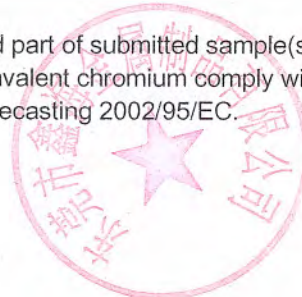
Page 1 of 4

DONGGUAN CITY XINHAI METAL PRODUCTS CO.,LTD

1ST WEIMING ROAD HENGZENG AV.XINAN COMMUNITY CHANGAN TOWN DONGGUAN CITY
GUANGDONG PROVINCE

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

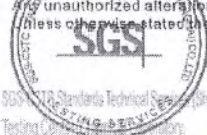
SGS Job No. : SP12-014327 - SH
Composition : BRASS
Date of Sample Received : 17 May 2012
Testing Period : 17 May 2012 - 22 May 2012
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on selected part of submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits in RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.



Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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Testing Service

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Member of the SGS Group (SGS SA)

Test Report

No. SHAEC1207780402

Date: 22 May 2012

Page 2 of 4

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-077804.002	Silvery metal

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

- (1) Determination of Cadmium by ICP-OES.
- (2) Determination of Lead by ICP-OES.
- (3) Determination of Mercury by ICP-OES.
- (4) Determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	9
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	◇	Negative

Notes :

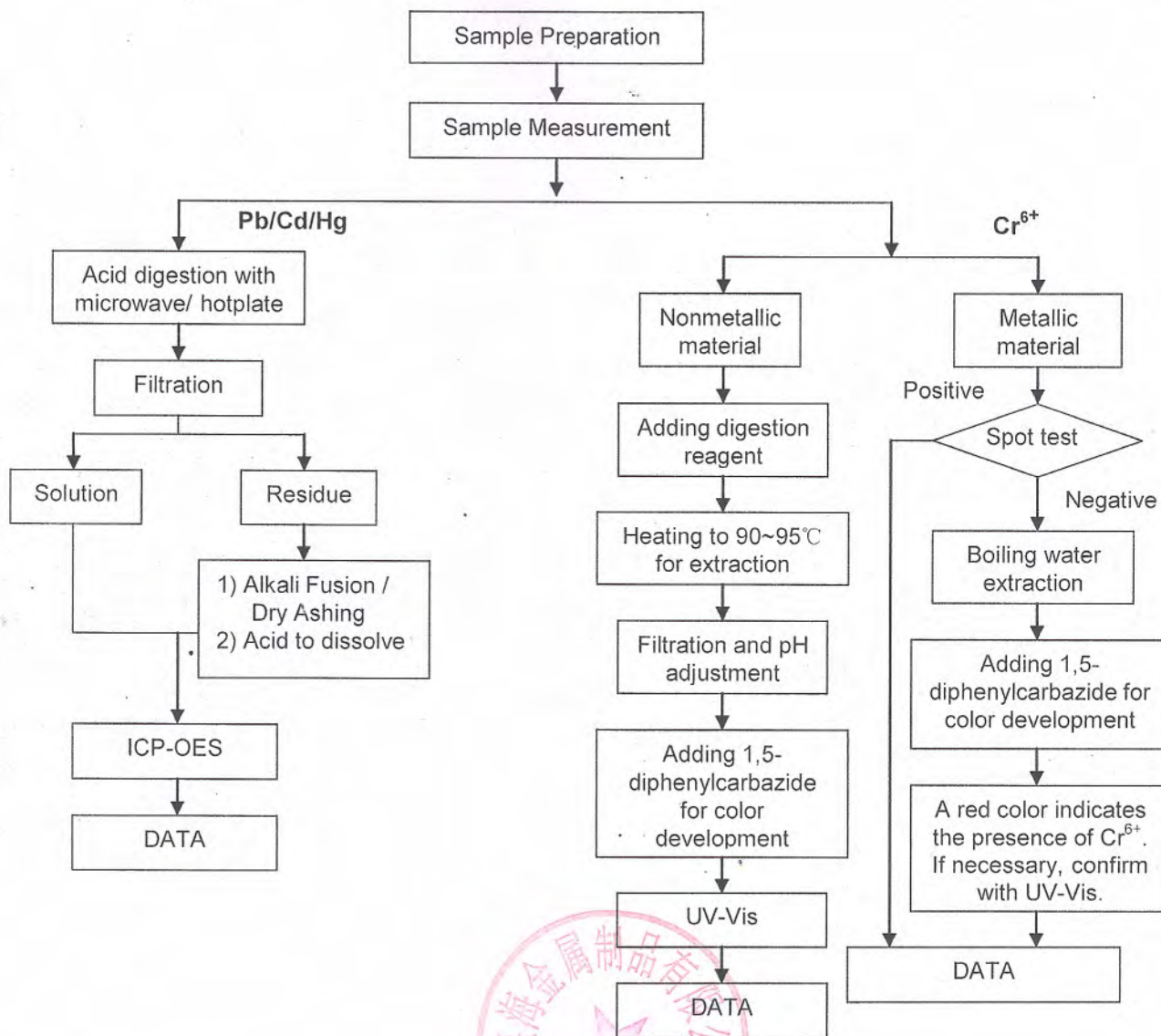
- (1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II
- (2) ◇Spot-test:
 Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating;
 (The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)
 ◇Boiling-water-extraction:
 Negative = Absence of Cr(VI) coating
 Positive = Presence of Cr(VI) coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.
 For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

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ATTACHMENTS

RoHS Testing Flow Chart

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



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Test Report

No. SHAEC1207780402

Date: 22 May 2012

Page 4 of 4

Sample photo:



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Testing Center

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Test Report

No. SHAEC1207780404

Date: 22 May 2012

Page 1 of 4

DONGGUAN CITY XINHAI METAL PRODUCTS CO.,LTD

1ST WEIMING ROAD HENGZENG AV.XINAN COMMUNITY CHANGAN TOWN DONGGUAN CITY
GUANGDONG PROVINCE

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

SGS Job No. : SP12-014327 - SH
Composition : NICKEL
Date of Sample Received : 17 May 2012
Testing Period : 17 May 2012 - 22 May 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 selected part of submitted sample(s), the
results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits
in RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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Test Report

No. SHAEC1207780404

Date: 22 May 2012

Page 2 of 4

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-077804.004	Silvery metal plating

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : (1) IEC 62321:2008 application of modified digestion by surface etching for Cadmium, Lead and Mercury, analysis by ICP-OES
(2) With reference to IEC 62321:2008 for Hexavalent Chromium by spot test / Colorimetric Method.

Test Item(s)	Limit	Unit	MDL	004
Lead (Pb)	1000	mg/kg	10	27
Cadmium (Cd)	100	mg/kg	10	ND
Mercury (Hg)	1000	mg/kg	10	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative

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.

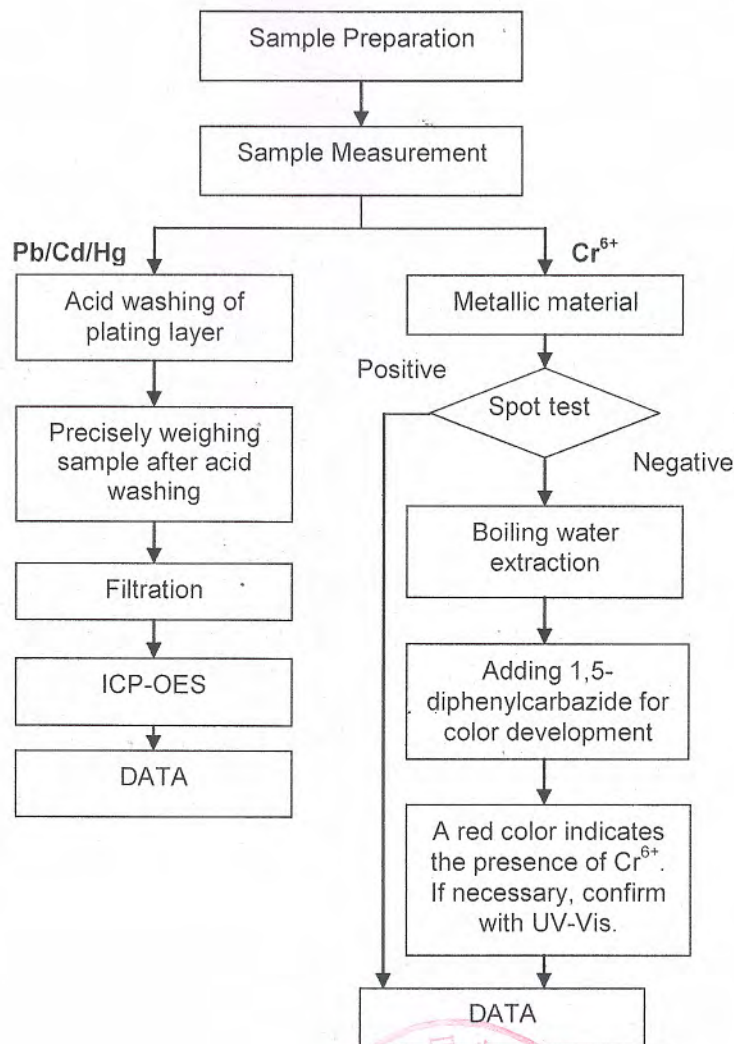
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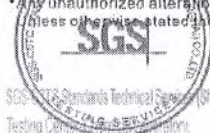
ATTACHMENTS

Plating Pb/Cd/Hg/Cr⁶⁺ Testing Flow Chart

- 1) Name of the person who made testing: Vera Liu/Allen Xiao
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu



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Test Report

No. SHAEC1207780404

Date: 22 May 2012

Page 4 of 4

Sample photo:



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Test Report

No. SHAEC1207780401

Date: 22 May 2012

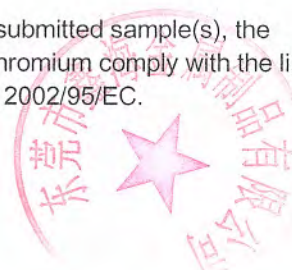
Page 1 of 4

DONGGUAN CITY XINHAI METAL PRODUCTS CO.,LTD

1ST WEIMING ROAD HENGZENG AV.XINAN COMMUNITY CHANGAN TOWN DONGGUAN CITY
GUANGDONG PROVINCE

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

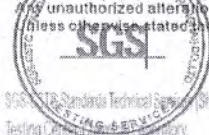
SGS Job No. : SP12-014327 - SH
Composition : COPPER
Date of Sample Received : 17 May 2012
Testing Period : 17 May 2012 - 22 May 2012
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on selected part of submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits in RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.



Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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Test Report

No. SHAEC1207780401

Date: 22 May 2012

Page 2 of 4

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-077804.001	Silvery metal

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

- (1) Determination of Cadmium by ICP-OES.
- (2) Determination of Lead by ICP-OES.
- (3) Determination of Mercury by ICP-OES.
- (4) Determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.

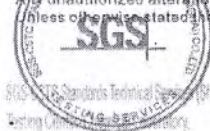
Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	◇	Negative

Notes :

- (1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II
- (2) ◇Spot-test:
 - Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating;
 - (The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)
- ◇Boiling-water-extraction:
 - Negative = Absence of Cr(VI) coating
 - Positive = Presence of Cr(VI) coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.
 - For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

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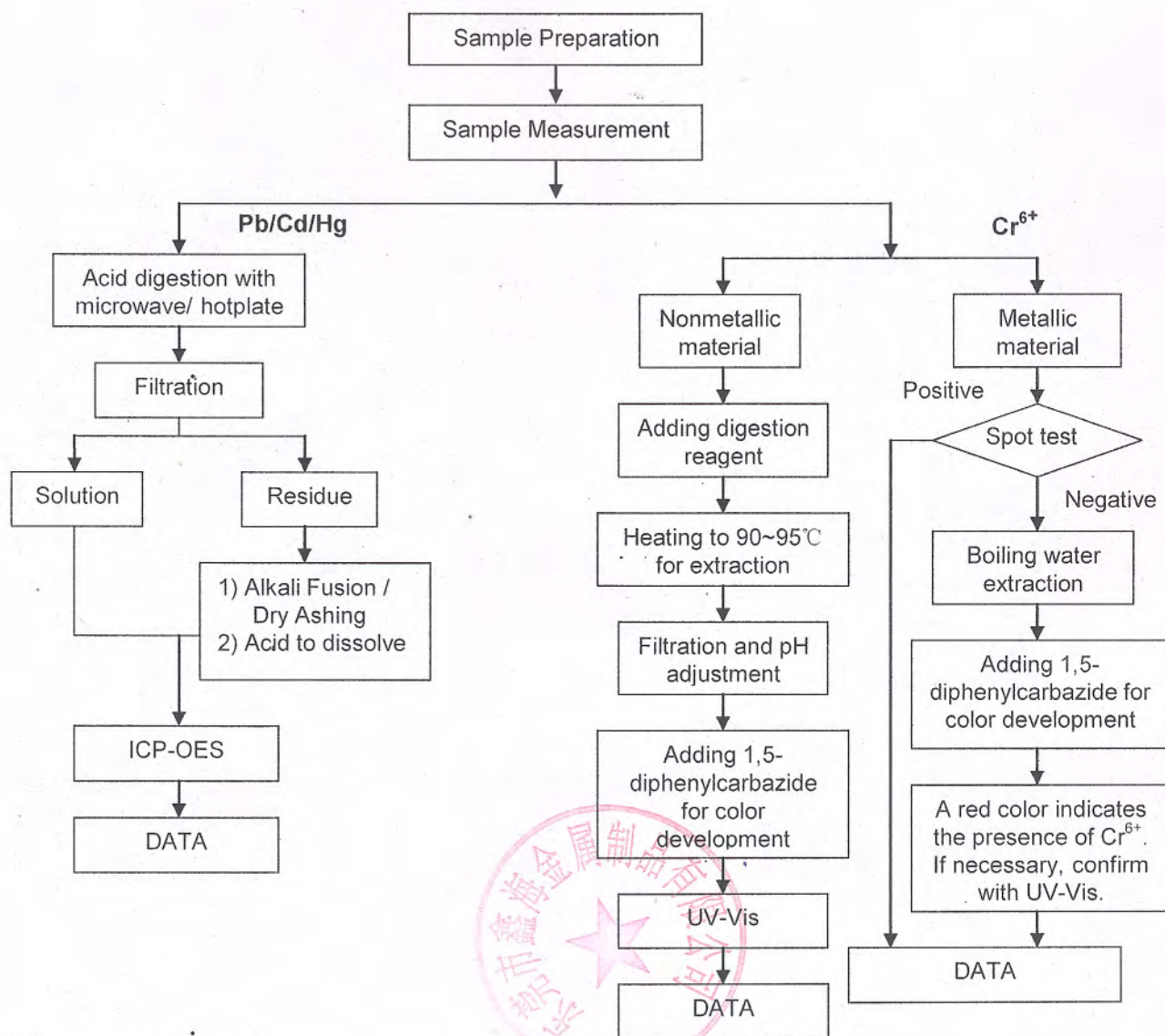
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ATTACHMENTS

RoHS Testing Flow Chart

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



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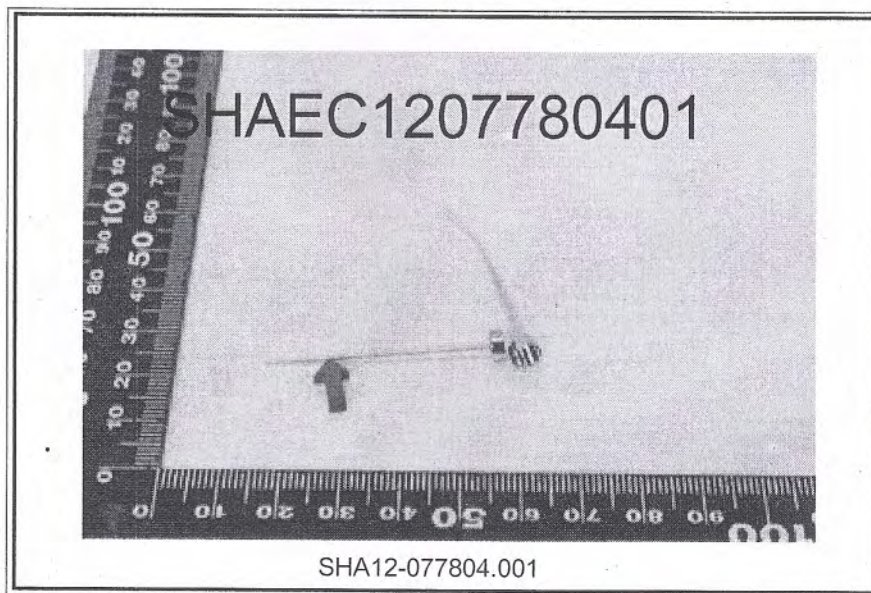
Test Report

No. SHAEC1207780401

Date: 22 May 2012

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Sample photo:

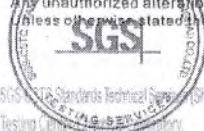


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Test Report

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Date: 22 May 2012

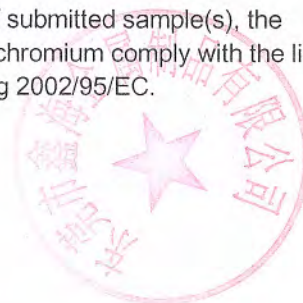
Page 1 of 4

DONGGUAN CITY XINHAI METAL PRODUCTS CO.,LTD

1ST WEIMING ROAD HENGZENG AV.XINAN COMMUNITY CHANGAN TOWN DONGGUAN CITY
GUANGDONG PROVINCE

The following sample(s) was/were submitted and identified on behalf of the clients as : SILVER COLOR
PLATING OF LEAD WIRE

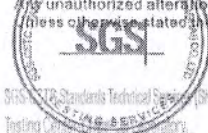
SGS Job No. : SP12-014327 - SH
Composition : TIN
Date of Sample Received : 17 May 2012
Testing Period : 17 May 2012 - 22 May 2012
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on selected part of submitted sample(s), the
results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits
in RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.



Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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Test Report

No. SHAEC1207780403

Date: 22 May 2012

Page 2 of 4

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-077804.003	Silvery metal plating

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : (1) IEC 62321:2008 application of modified digestion by surface etching for Cadmium, Lead and Mercury, analysis by ICP-OES
(2) With reference to IEC 62321:2008 for Hexavalent Chromium by spot test / Colorimetric Method.

Test Item(s)	Limit	Unit	MDL	003
Lead (Pb)	1000	mg/kg	10	126
Cadmium (Cd)	100	mg/kg	10	ND
Mercury (Hg)	1000	mg/kg	10	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative

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

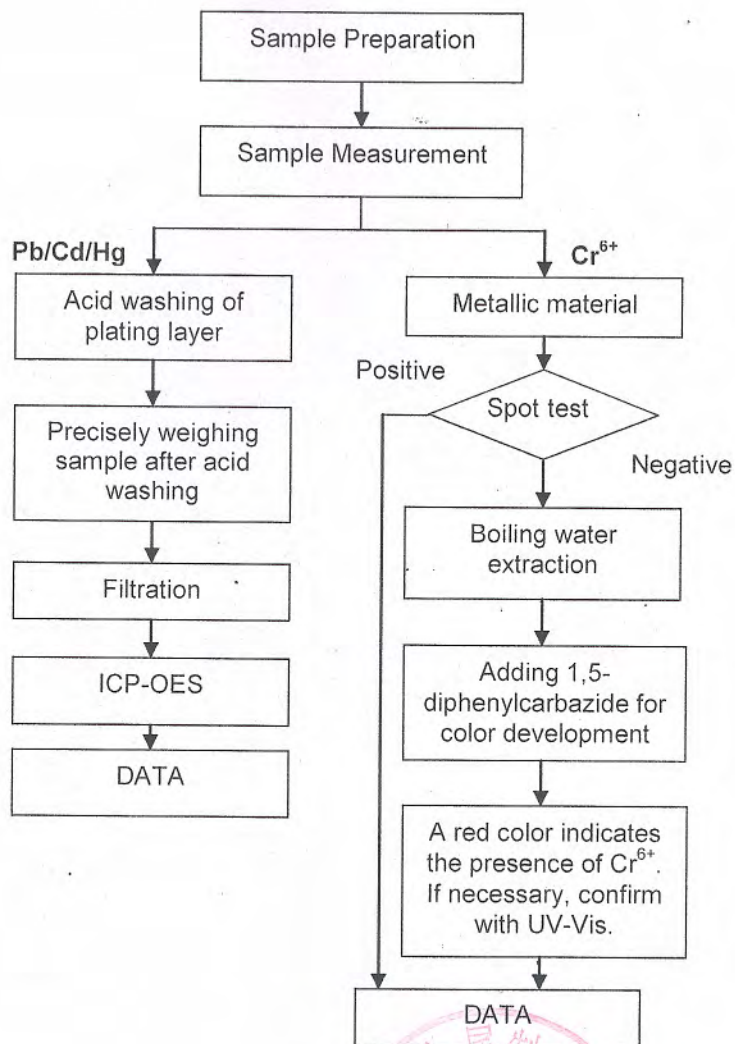
The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

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ATTACHMENTS

Plating Pb/Cd/Hg/Cr⁶⁺ Testing Flow Chart

- 1) Name of the person who made testing: Vera Liu/Allen Xiao
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu



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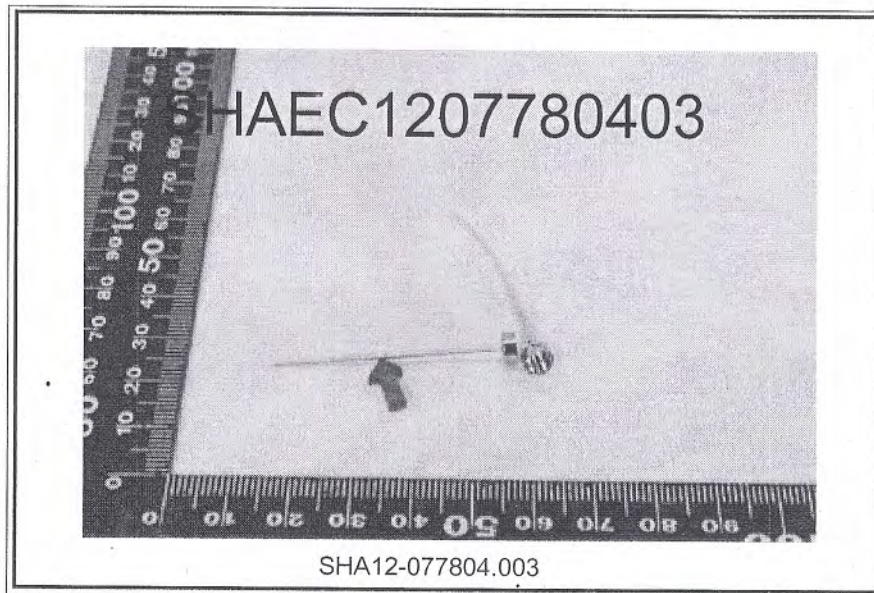
Test Report

No. SHAEC1207780403

Date: 22 May 2012

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Sample photo:

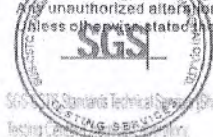


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TEST REPORT

NO.: A002R121008024-2R02

Date: Oct.10, 2012

Page 1 of 4

Customer: SuZhou FuHong Electronic Industrial Co., Ltd.

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

Report on the submitted sample said to be

Sample name: Lead wire copper shell

Model: /

Item/Lot No.: /

Material: /

Buyer: /

Supplier: /

Manufacturer: /

Sample received date: Oct. 08, 2012

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

Testing Requested

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

Testing method:

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

Note:

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

Conclusion:

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

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

Signed for and on behalf of

Shenzhen AOV Testing Technology Co., Ltd, Kunshan Branch

Project Leader:

Li Tingting, Maggie

Chemical Test Director

Reviewed by:

Wang Wexin, Weikin

Technical Director

Approved by:

Yuan Qi, Mickey

Lab Manager

TEST REPORT

NO.: A002R121008024-2R02

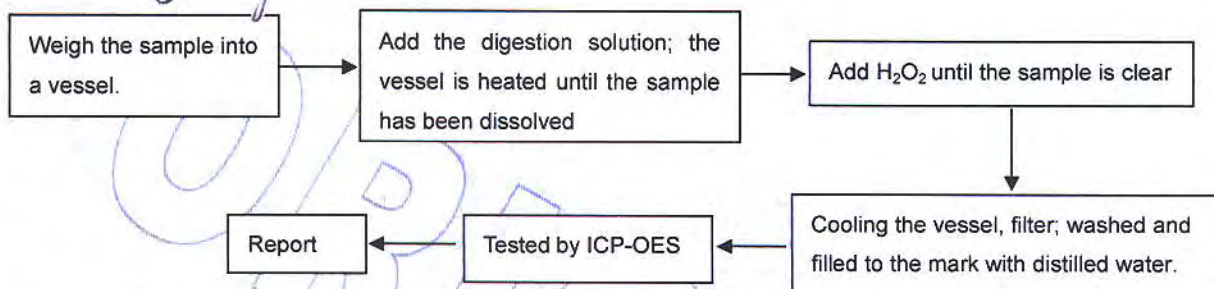
Date: Oct.10, 2012

Page 2 of 4

Test Flow:

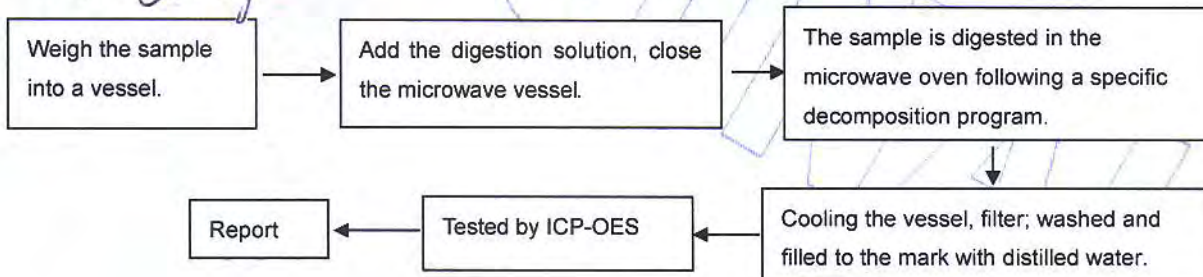
1. To Determine Lead, Cadmium Content: (Metal substrate)

Tested by: *Condy*



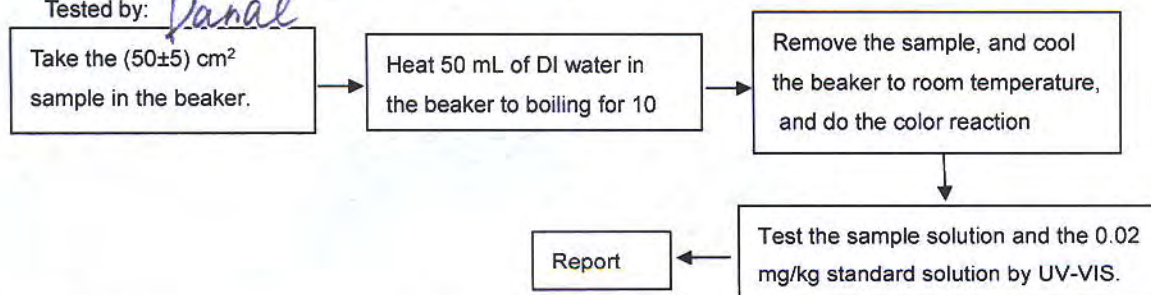
2. To Determine Mercury Content: (Metal substrate)

Tested by: *Condy*



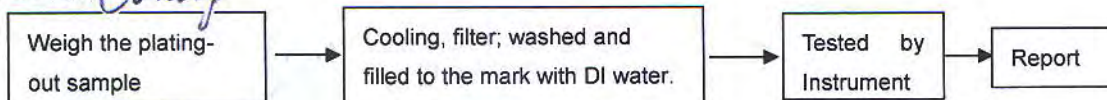
3. To Determine Hexavalent Chromium Content (boiling- water- extraction): (Metal substrate)

Tested by: *Danae*



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

Tested by: *Condy*



TEST REPORT

NO.: A002R121008024-2R02

Date: Oct.10, 2012

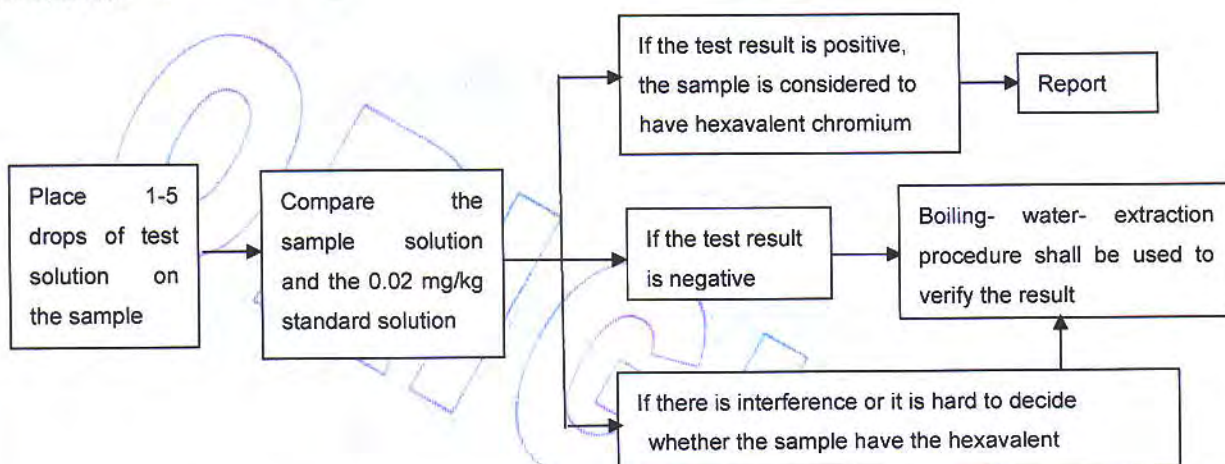
Page 3 of 4

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

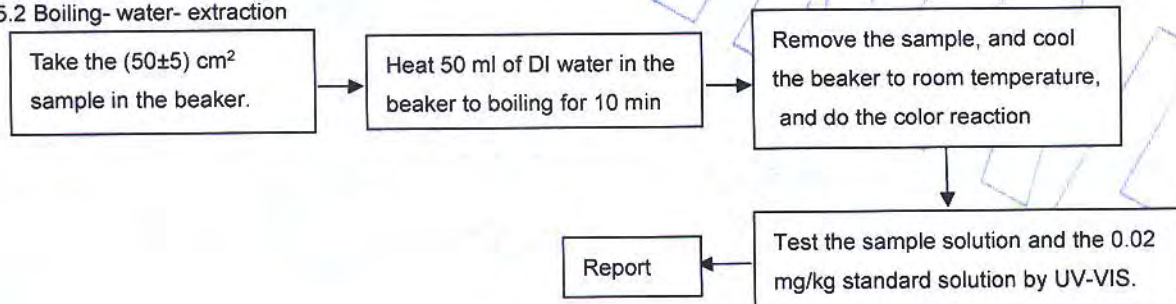
Tested by:

Danae

5.1 Spot-test



5.2 Boiling- water- extraction



Sample Description:

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

Test Results:

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

TEST REPORT

NO.: A002R121008024-2R02

Date: Oct.10, 2012

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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



Lead wire copper shell

End of Report



Test Report

No. TSNEC1200272601

Date: 09 Apr 2012

Page 1 of 8

BEIJING HYSTIC NEW MATERIALS CO., LTD.

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

100041, CHINA

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

SGS Job No. : TP12-004950 - TJ

Model No. : EP608

Date of Sample Received : 31 Mar 2012

Testing Period : 31 Mar 2012 - 09 Apr 2012

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

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

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

Conclusion : Based on the performed tests on submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.

Aimy Wang
Approved Signatory

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Test Report

No. TSNEC1200272601

Date: 09 Apr 2012

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Test Results :

Test Part Description :

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

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

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

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

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

Notes :

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

Hexabromocyclododecane (HBCDD)

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

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

Notes :

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

Phthalates

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

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

Notes :

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

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Result shown is of the total weight of wet sample

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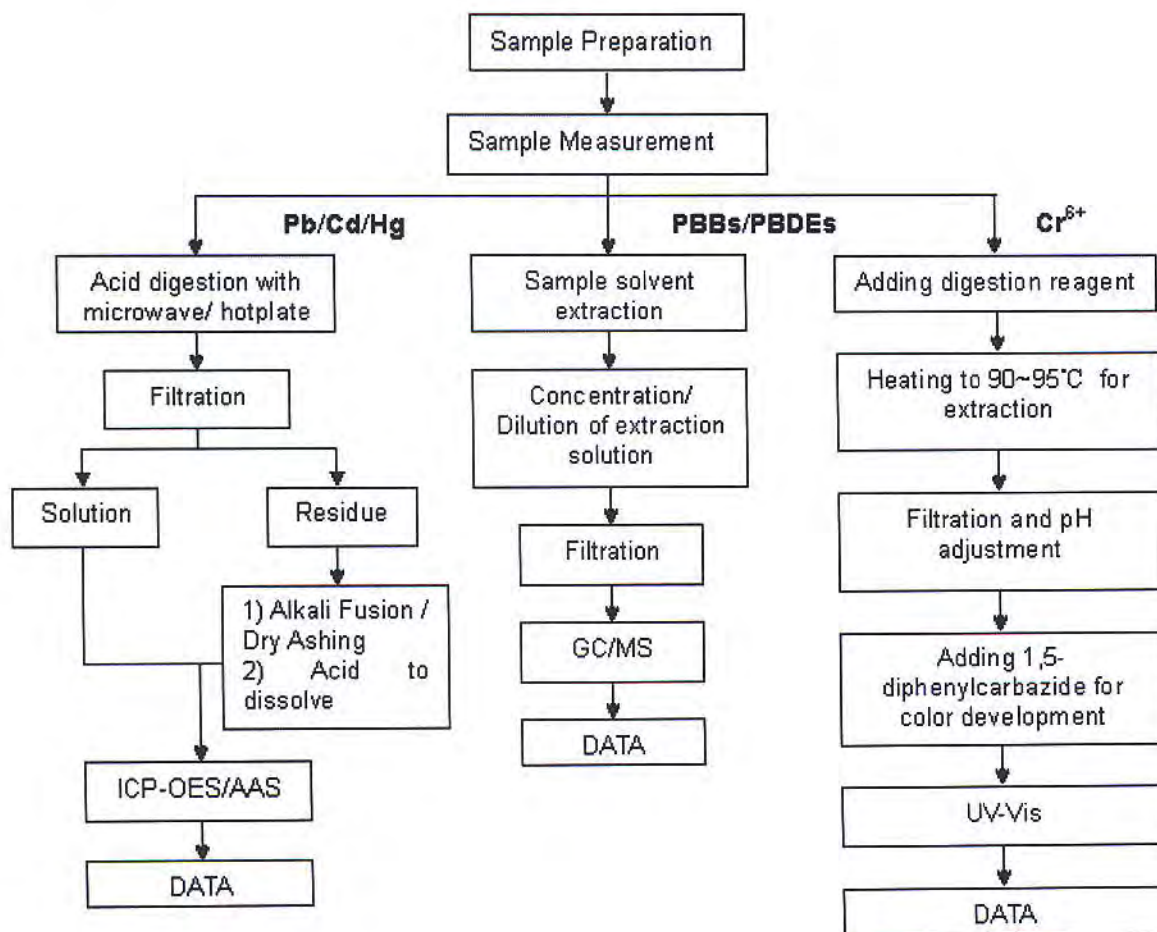
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ATTACHMENTS

Cd/Pb/Hg/Cr⁶⁺/PBBs/PBDEs Flow Chart

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



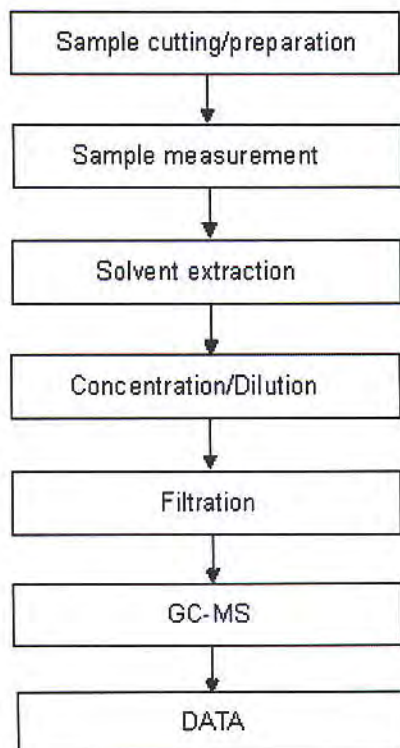
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ATTACHMENTS

HBCDD Testing Flow Chart

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



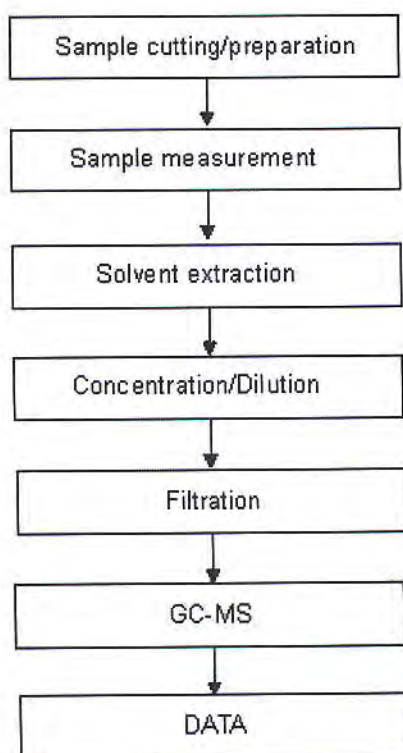
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ATTACHMENTS

Phthalate Testing Flow Chart

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



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Sample photo:



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Test Report

No. TSNEC1200272602

Date: 09 Apr 2012

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

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

SGS Job No. : TP12-004950 - TJ
Model No. : EP608
Date of Sample Received : 31 Mar 2012
Testing Period : 31 Mar 2012 - 09 Apr 2012
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).

Signed for and on behalf of
SGS-CSTC Ltd.

Aimy Wang
Approved Signatory

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Test Report

No. TSNEC1200272602

Date: 09 Apr 2012

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Test Results :

Test Part Description :

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

Remarks :

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

Halogen

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

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

Result shown is of the total weight of wet sample

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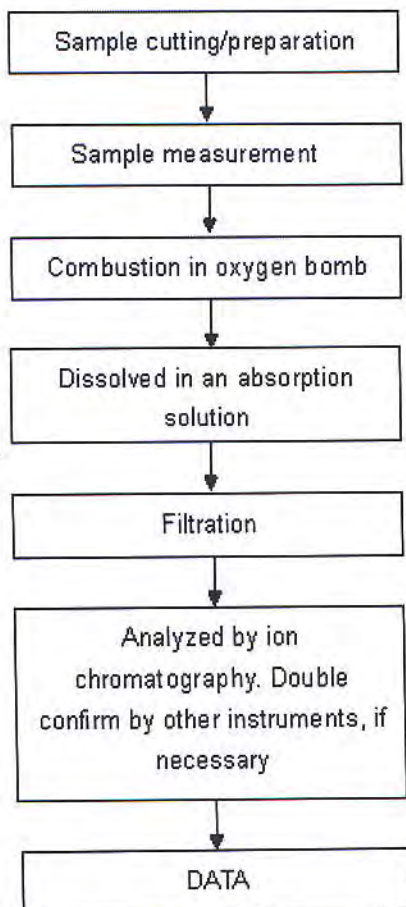
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ATTACHMENTS

Halogen Testing Flow Chart

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



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Test Report

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Date: 09 Apr 2012

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Sample photo:



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Test Report

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

Number : TWNC00282886

Date : Oct 31, 2012

Sample Description:

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

Part Description : sand

Part Number : 091250

Date Sample Received : Oct 24, 2012

Date Test Started : Oct 25, 2012

Test Conducted :

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

Authorized By:
On Behalf Of Intertek Testing Services
Taiwan Limited



K. Y. Liang
Director



Page 1 of 7

Intertek Testing Services Taiwan Ltd.

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

全國公證檢驗股份有限公司

114 台北市內湖區瑞光路 423 號 8 樓

Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2410

Number : TWNC00282886

Test Conducted

(I) Test Result Summary :

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

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

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

Date Sample Received : Oct 24, 2012

Test Period : Oct 25, 2012 To Oct 30, 2012



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Number : TWNC00282886

Test Conducted

(II) RoHS Limits:

<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 Annex II of 2011/65/EU for homogeneous material.

(III) Test Method:

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



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Number : TWNC00282886

Test Conducted

(Ⅲ) Test Method:

<u>Test Item</u>	<u>Test Method</u>	<u>Reporting Limit</u>
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MS and further HPLC-DAD 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-MS and further HPLC-DAD confirmation when necessary.	5 ppm
Halogen Content	With reference to EN 14582:2007 by calorimetric bomb with oxygen and determined by Ion Chromatograph.	50 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample



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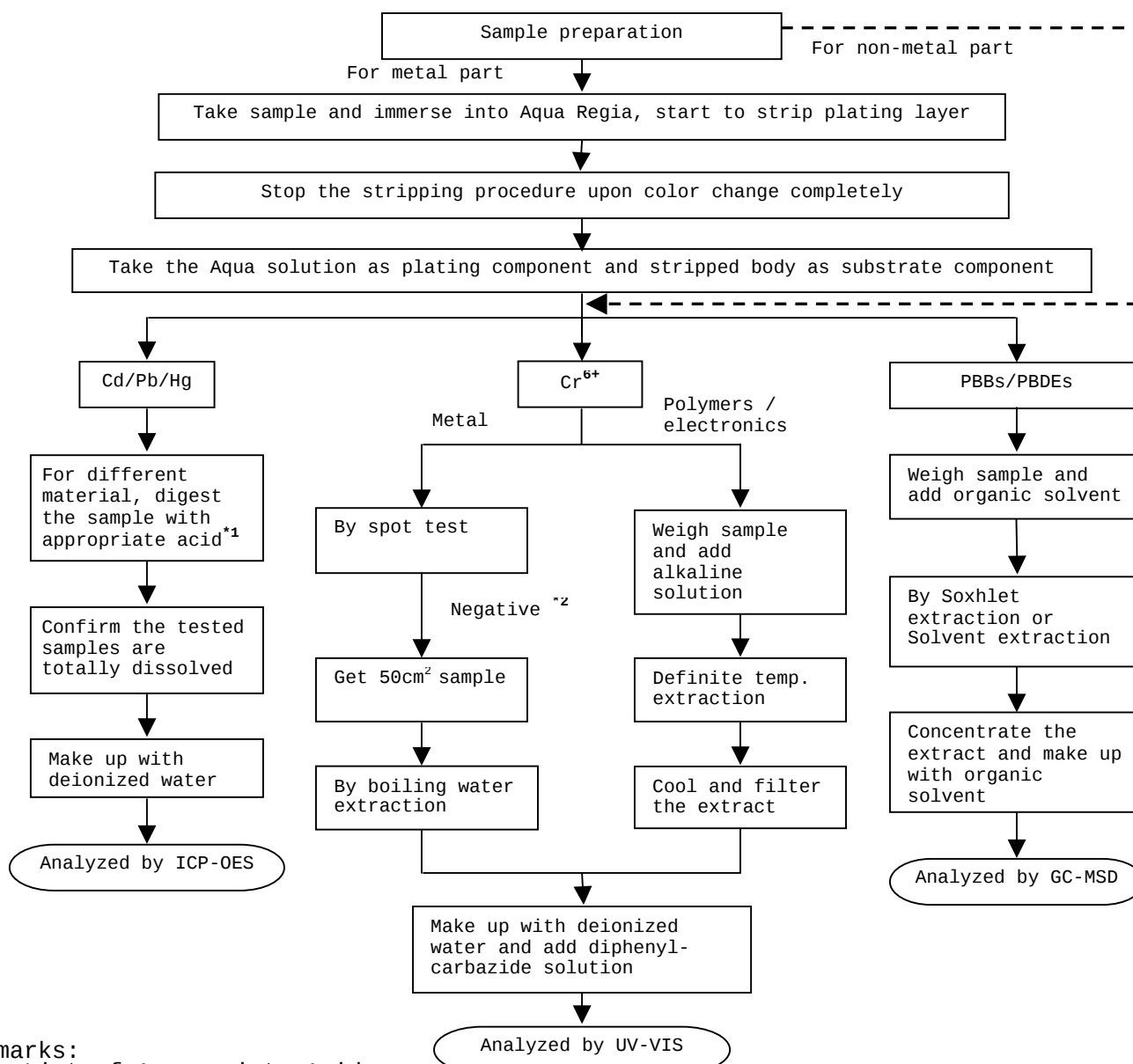
Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2410

Test Conducted

(IV) Measurement Flowchart:

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

Reference Standard: IEC 62321 edition 1.0:2008



Remarks:

*1: List of Appropriate Acid :

Material	Acid Added for Digestion
Polymers	HNO 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.

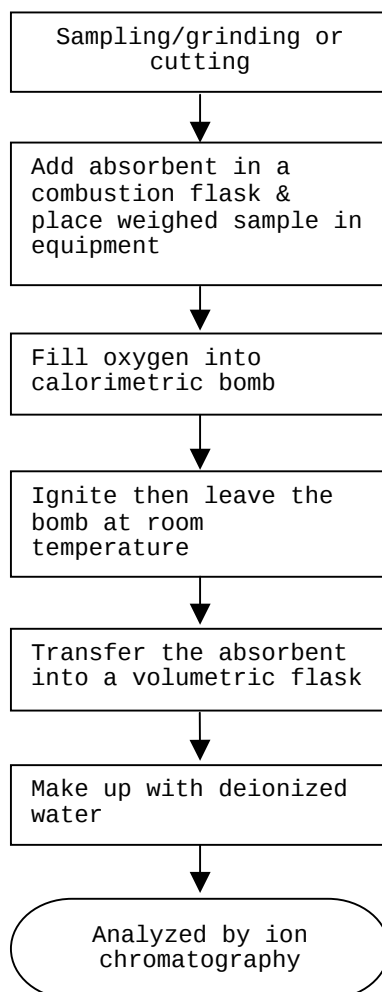


Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content

Reference Standard : EN 14582



End of Report

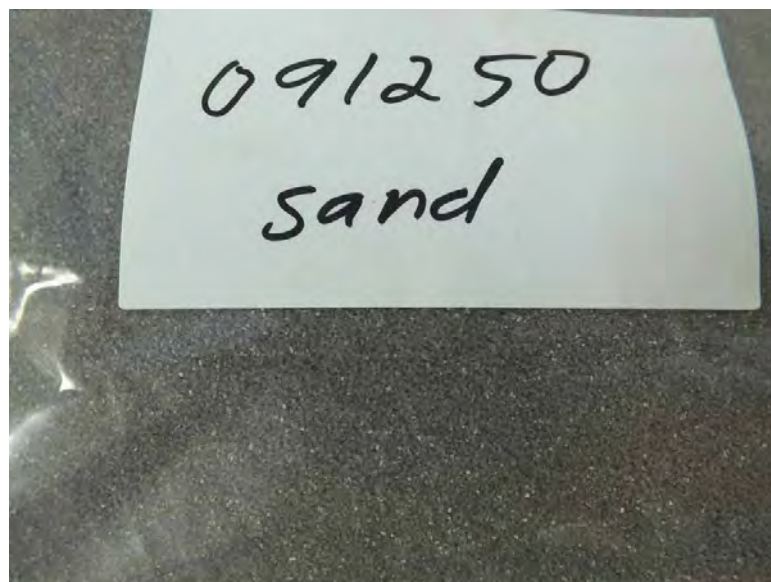
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Test Conducted

Number : TWNC00282886

Photo



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Test Report

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

Number : TWNC00282887

Date : Oct 31, 2012

Sample Description:

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

Part Description : Filler

Part Number : 091251

Date Sample Received : Oct 24, 2012

Date Test Started : Oct 25, 2012

Test Conducted :

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

Authorized By:
On Behalf Of Intertek Testing Services
Taiwan Limited



K. Y. Liang
Director



Page 1 of 7

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Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2410

Number : TWNC00282887

Test Conducted

(I) Test Result Summary :

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

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

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

Date Sample Received : Oct 24, 2012

Test Period : Oct 25, 2012 To Oct 30, 2012



Page 2 of 7

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Number : TWNC00282887

Test Conducted

(II) RoHS Limits:

<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 Annex II of 2011/65/EU for homogeneous material.

(III) Test Method:

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



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Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2410

Number : TWNC00282887

Test Conducted

(Ⅲ) Test Method:

<u>Test Item</u>	<u>Test Method</u>	<u>Reporting Limit</u>
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MS and further HPLC-DAD 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-MS and further HPLC-DAD confirmation when necessary.	5 ppm
Halogen Content	With reference to EN 14582:2007 by calorimetric bomb with oxygen and determined by Ion Chromatograph.	50 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample



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114 台北市內湖區瑞光路 423 號 8 樓

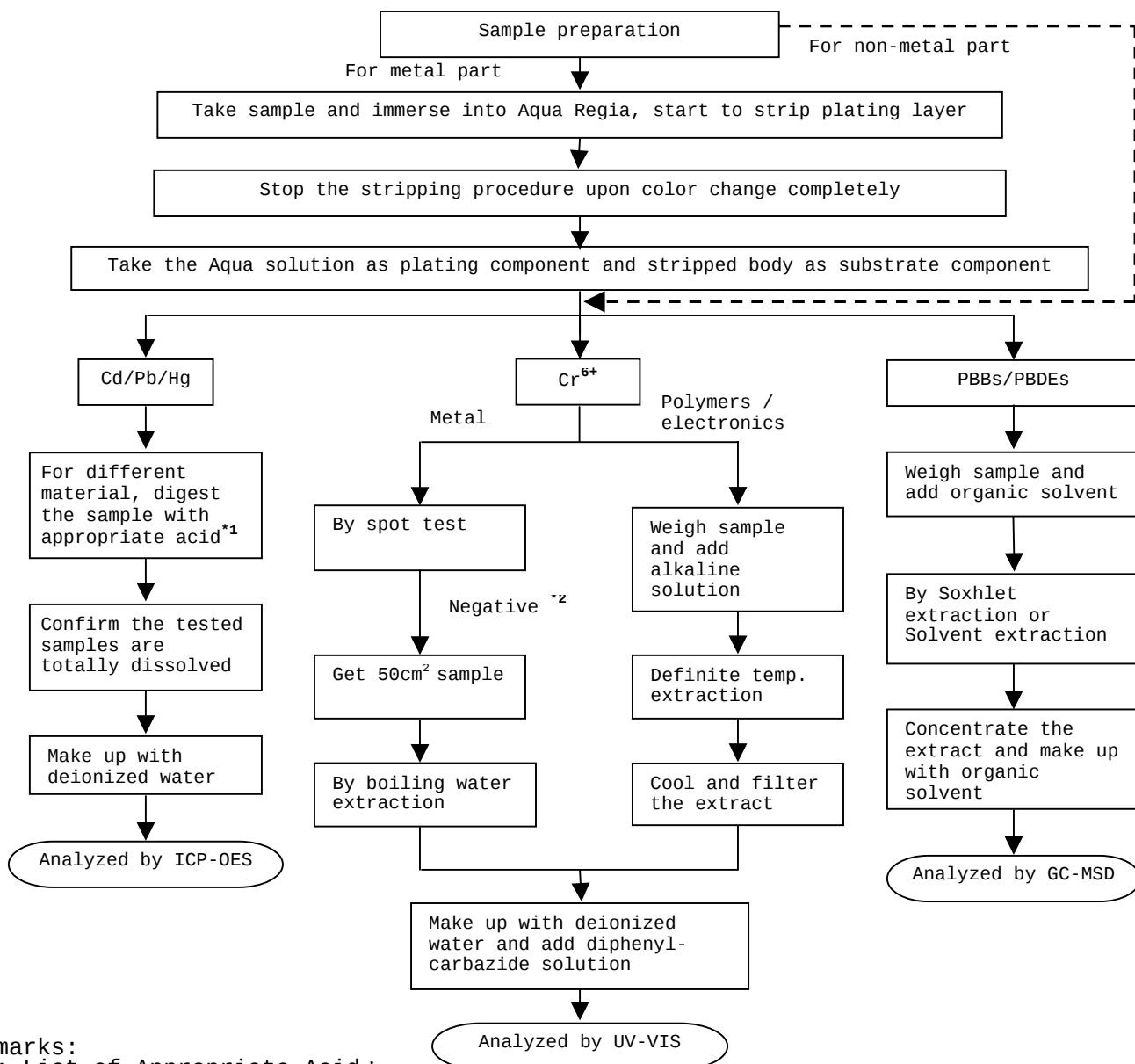
Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2410

Test Conducted

(IV) Measurement Flowchart:

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

Reference Standard: IEC 62321 edition 1.0:2008



Remarks:

*1: List of Appropriate Acid :

Material	Acid Added for Digestion
Polymers	HNO 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.

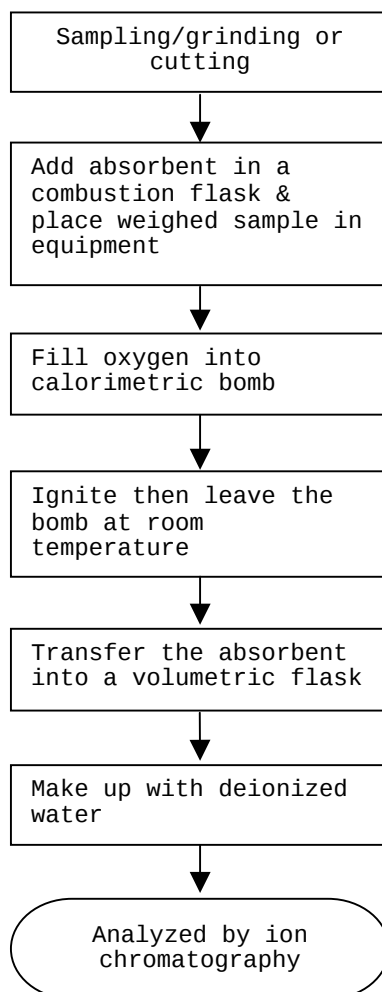


Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content

Reference Standard : EN 14582



End of Report

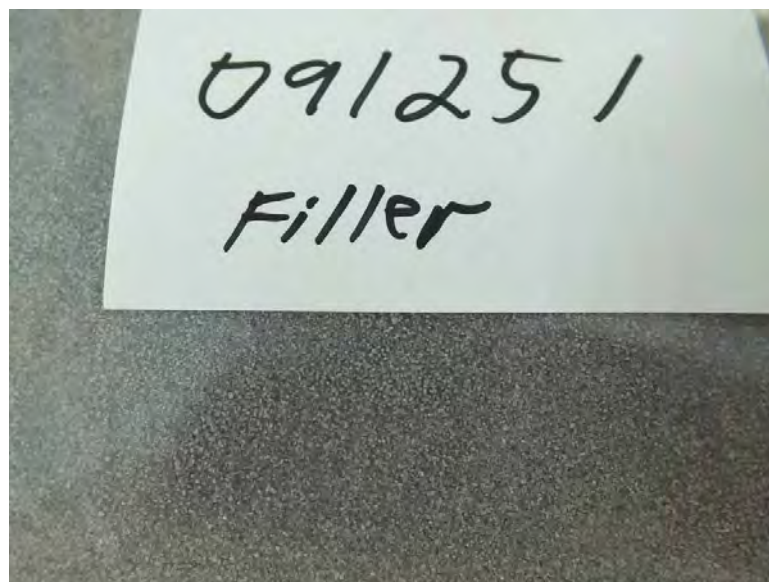
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Test Conducted

Number : TWNC00282887

Photo





TEST REPORT

NUMBER: SHAH00355778

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

DATE: DEC 10, 2012

SAMPLE DESCRIPTION:

ONE(1) SUBMITTED SAMPLE SAID TO BE **WHITE SAND**.

ITEM NAME : SAND.

PART NO. : 091254.

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED
1 (I) TEST RESULT SUMMARY:

TESTING ITEM	RESULT (ppm)
HEAVY METAL	
CADMIUM (Cd) CONTENT	ND
LEAD (Pb) CONTENT	ND
MERCURY (Hg) CONTENT	ND
CHROMIUM VI (Cr ⁶⁺) CONTENT	ND
POLYBROMINATED BIPHENYLS (PBBs)	
MONOBROMINATED BIPHENYLS (MonoBB)	ND
DIBROMINATED BIPHENYLS (DiBB)	ND
TRIBROMINATED BIPHENYLS (TriBB)	ND
TETRABROMINATED BIPHENYLS (TetraBB)	ND
PENTABROMINATED BIPHENYLS (PentaBB)	ND
HEXABROMINATED BIPHENYLS (HexaBB)	ND
HEPTABROMINATED BIPHENYLS (HeptaBB)	ND
OCTABROMINATED BIPHENYLS (OctaBB)	ND
NONABROMINATED BIPHENYLS (NonaBB)	ND
DECABROMINATED BIPHENYL (DecaBB)	ND
POLYBROMINATED DIPHENYL ETHERS (PBDEs)	
MONOBROMINATED DIPHENYL ETHERS (MonoBDE)	ND
DIBROMINATED DIPHENYL ETHERS (DiBDE)	ND
TRIBROMINATED DIPHENYL ETHERS (TriBDE)	ND
TETRABROMINATED DIPHENYL ETHERS (TetraBDE)	ND
PENTABROMINATED DIPHENYL ETHERS (PentaBDE)	ND
HEXABROMINATED DIPHENYL ETHERS (HexaBDE)	ND
HEPTABROMINATED DIPHENYL ETHERS (HeptaBDE)	ND
OCTABROMINATED DIPHENYL ETHERS (OctaBDE)	ND
NONABROMINATED DIPHENYL ETHERS (NonaBDE)	ND
DECABROMINATED DIPHENYL ETHER (DecaBDE)	ND
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: DENT FANG / LEAF LIU

(II) ROHS REQUIREMENT:

RESTRICTED SUBSTANCES	LIMITS
CADMIUM (Cd) CONTENT	0.01% (100ppm)
LEAD (Pb) CONTENT	0.1% (1000ppm)
MERCURY (Hg) CONTENT	0.1% (1000ppm)
CHROMIUM VI (Cr ⁶⁺) CONTENT	0.1% (1000ppm)
POLYBROMINATED BIPHENYLS (PBBs)	0.1% (1000ppm)
POLYBROMINATED DIPHENYL ETHERS (PBDEs)	0.1% (1000ppm)

THE ABOVE LIMITS WERE QUOTED FROM ROHS DIRECTIVE 2002/95/EC AND AMENDMENT 2005/618/EC FOR HOMOGENEOUS MATERIAL.

TO BE CONTINUED

TESTS CONDUCTED

(III) TEST METHOD:

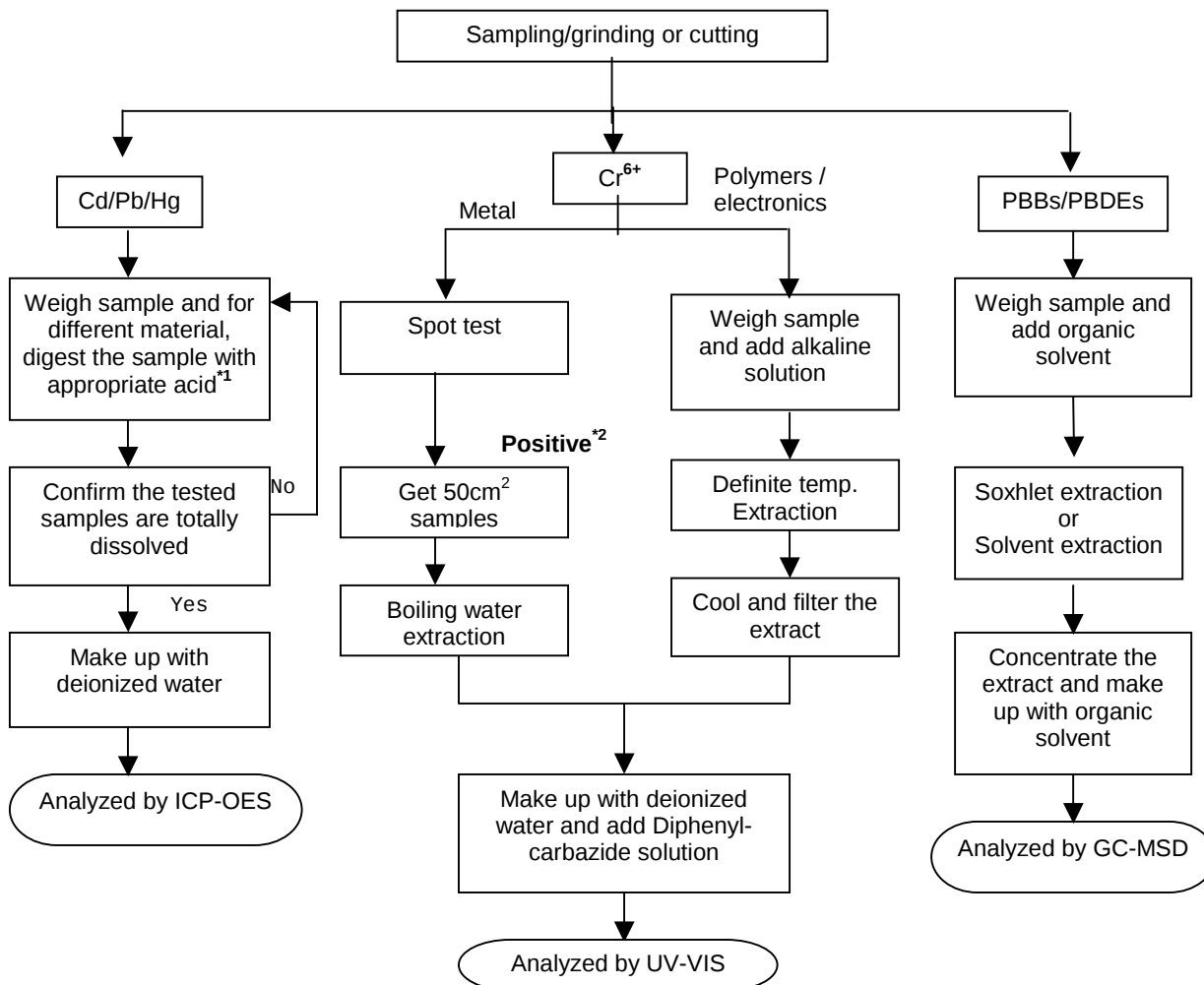
TESTING ITEM	TESTING METHOD	REPORTING LIMIT
CADMIUM (Cd) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0:2008 IN CLAUSE 8/9/10, BY MICROWAVE DIGESTION UNTIL THE TESTED SAMPLES ARE TOTALLY DISSOLVED AND DETERMINED BY ICP-OES.	2 ppm
LEAD (Pb) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0:2008 IN CLAUSE 8/9/10, BY MICROWAVE DIGESTION UNTIL THE TESTED SAMPLES ARE TOTALLY DISSOLVED AND DETERMINED BY ICP-OES.	2 ppm
MERCURY (Hg) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0:2008 IN CLAUSE 7, BY MICROWAVE DIGESTION UNTIL THE TESTED SAMPLES ARE TOTALLY DISSOLVED AND DETERMINED BY ICP-OES.	2 ppm
CHROMIUM VI (CR 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 ANALYZE IN SAMPLE

TO BE CONTINUED

TESTS CONDUCTED

(IV) MEASUREMENT FLOWCHART:
TEST FOR Cd/ Pb/ Hg/Cr (VI)/ PBBs/PBDES CONTENTS
REFERENCE STANDARD: IEC 62321 EDITION 1.0:2008



REMARKS:

*1: LIST OF APPROPRIATE ACID:

MATERIAL	ACID ADDED FOR DIGESTION
POLYMERS	HNO 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

TESTS CONDUCTED

2 (I) TEST RESULT SUMMARY :

TESTING ITEM	RESULT (ppm)
HALOGEN CONTENT	
FLUORINE (F)	ND
CHLORINE (Cl)	ND
BROMINE (Br)	ND
IODINE (I)	ND

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

RESPONSIBILITY OF CHEMIST : GRAVE WANG

(III) 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

DATE SAMPLE RECEIVED : DEC.5, 2012

TESTING PERIOD : DEC.5, 2012 TO DEC.7, 2012

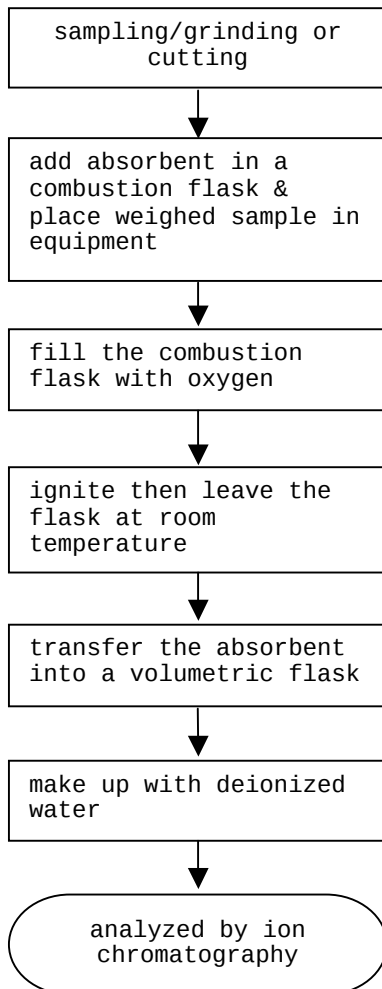
TO BE CONTINUED

TESTS CONDUCTED

(IV) MEASUREMENT FLOWCHART:

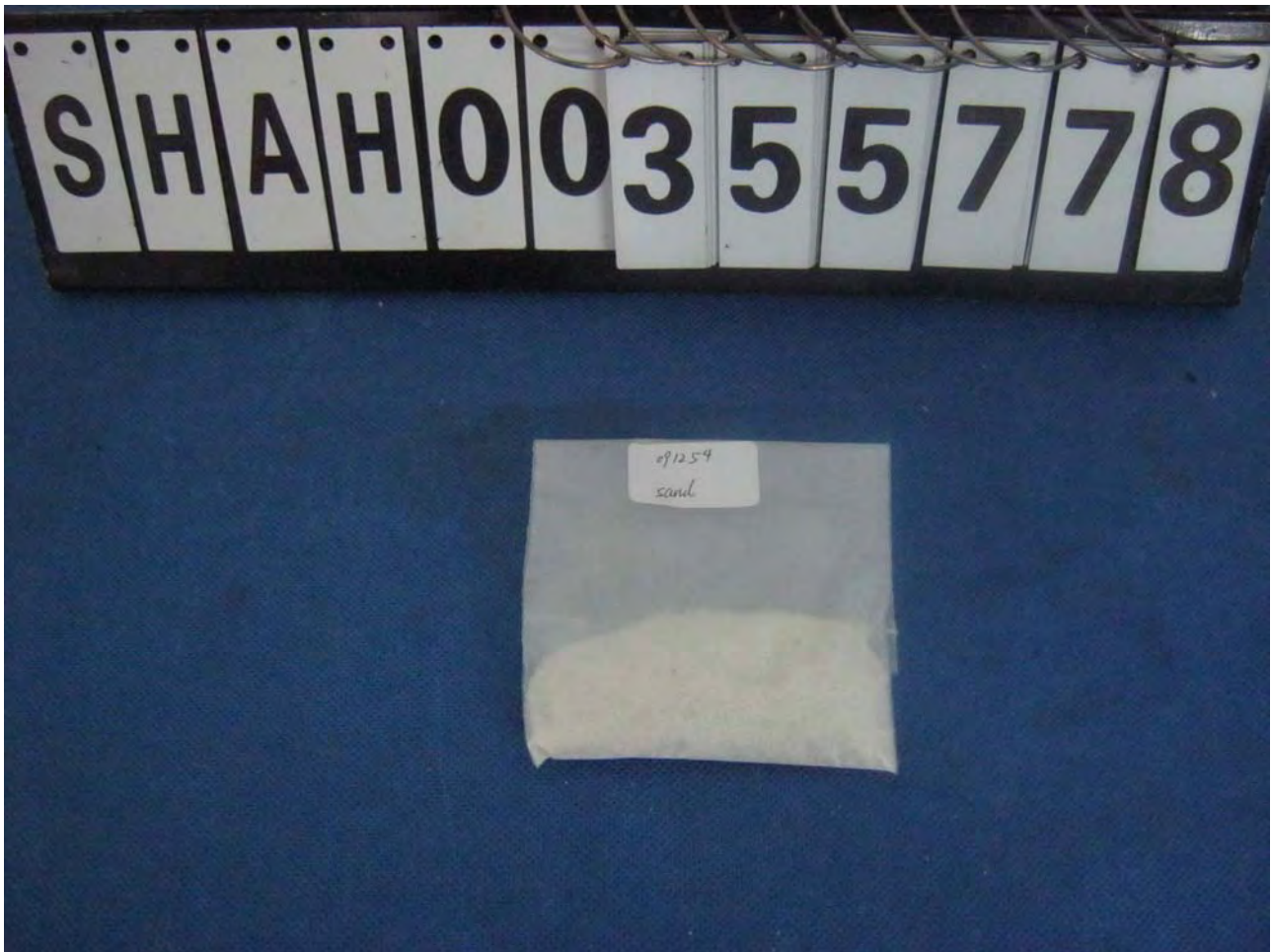
TEST FOR HALOGEN CONTENT

REFERENCE STANDARD: EN 14582



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345629

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

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

ONE (1) SUBMITTED SAMPLE SAID TO BE **ORANGE INK.**
PART DESCRIPTION : INK-ORANGE.
PART NUMBER : 425900.
DATE SAMPLE RECEIVED : OCTOBER.15, 2012.
DATE TEST STARTED : OCTOBER.15, 2012.

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

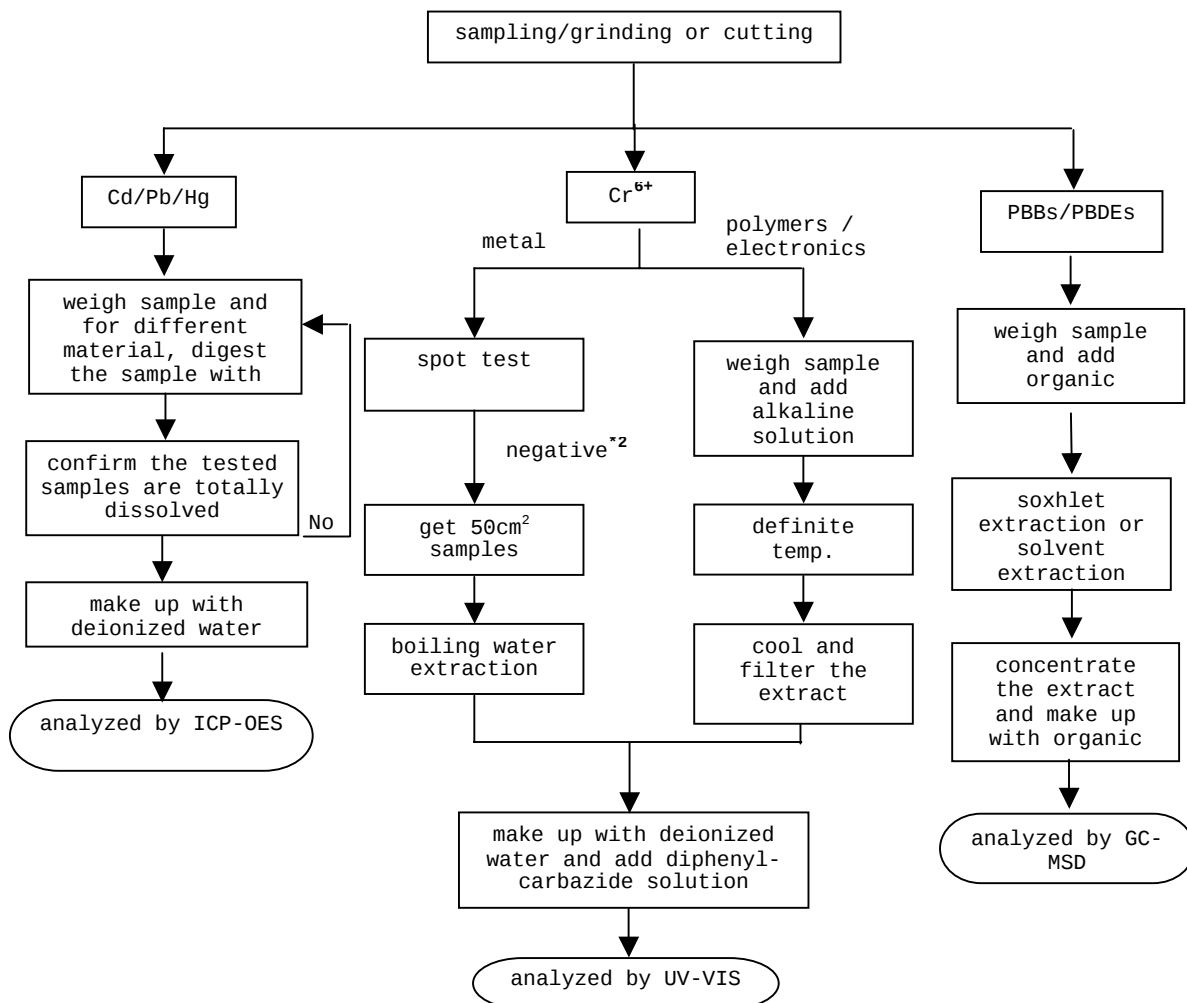
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Contents

Reference Standard: IEC 62321 edition 1.0:2008



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers HNO	₃ HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345629

TESTS CONDUCTED

2 (I) Test Result Summary :

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

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

Responsibility Of Chemist : LEAF LIU

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

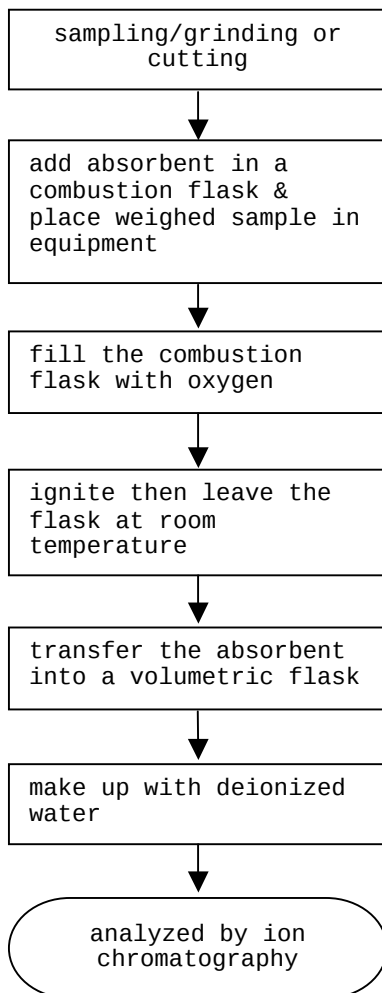
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content

Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345629

3

TESTS CONDUCTED

(A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

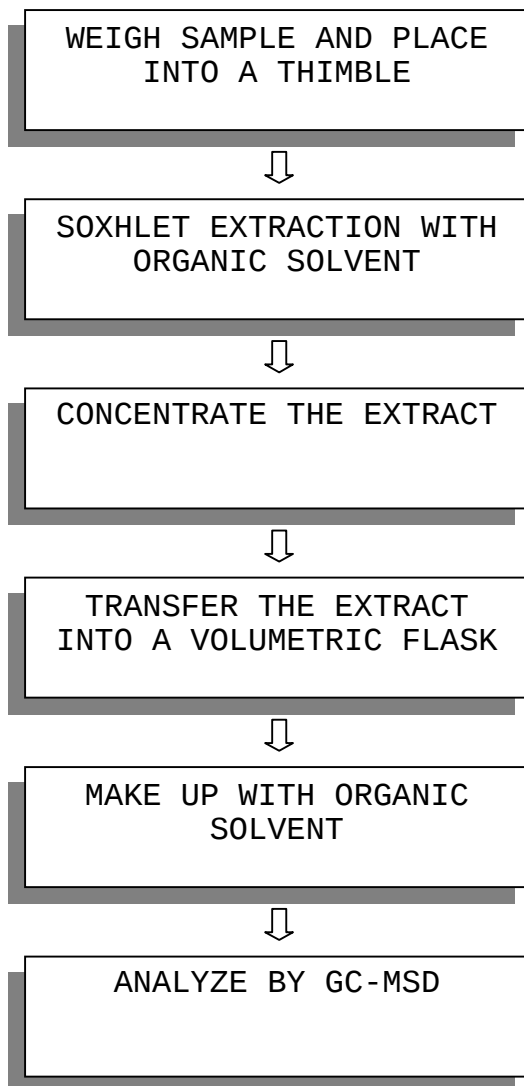
(B) TEST METHOD :

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

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SH AH00345629

TESTS CONDUCTED
4 PHthalate Content Test

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

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

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

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

5 PHthalate Content Test

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

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

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

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

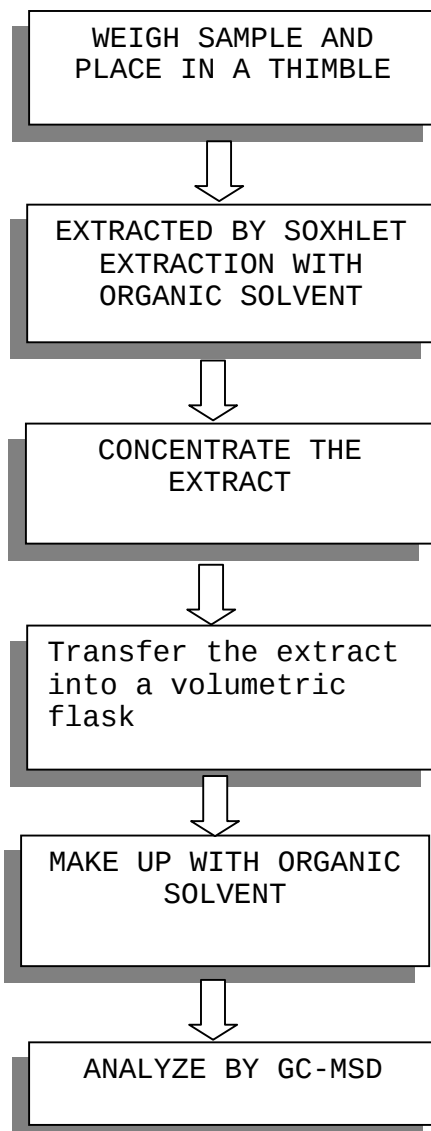
DATE SAMPLE RECEIVED: OCT.15, 2012
TESTING PERIOD: OCT.15, 2012 TO OCT.18, 2012

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)

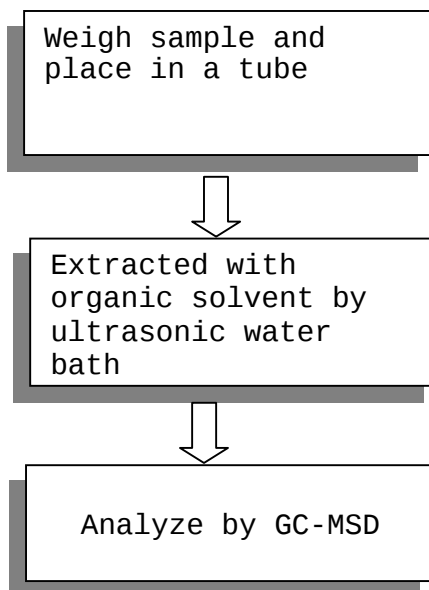


TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00346635

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

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

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

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

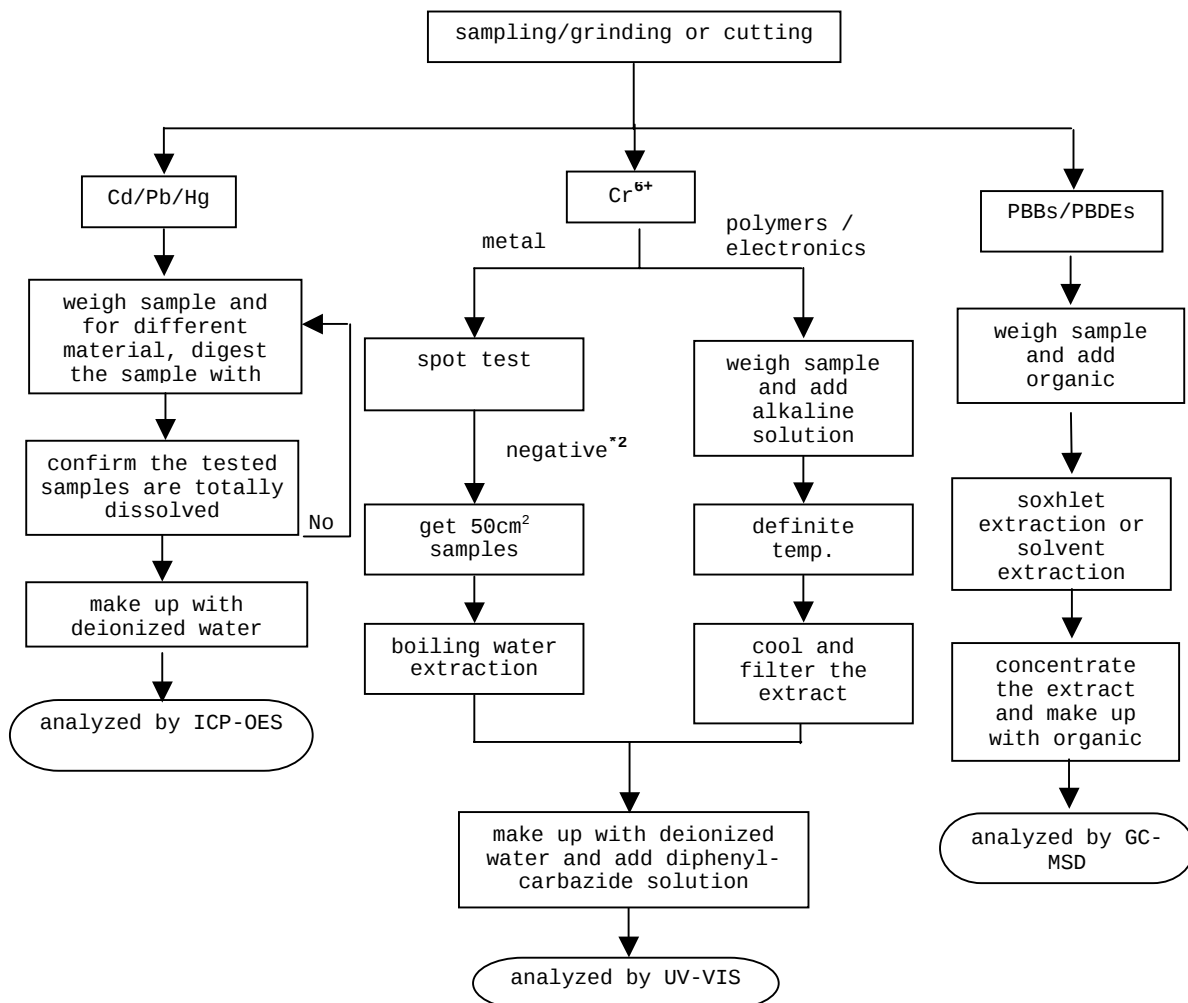
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Contents

Reference Standard: IEC 62321 edition 1.0:2008



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ ,HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00346635

TESTS CONDUCTED

2 (I) Test Result Summary :

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

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

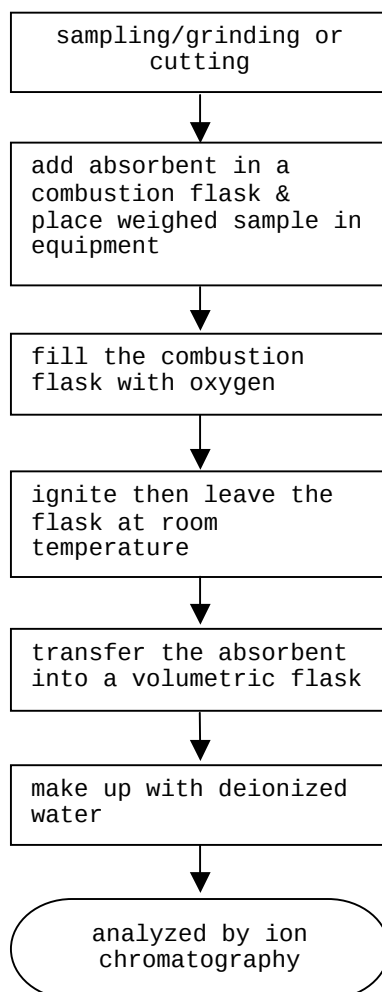
Testing Item T	Testing Method R	Reporting Limit
Halogen Content	With reference to EN 14582:2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED
(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00346635

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

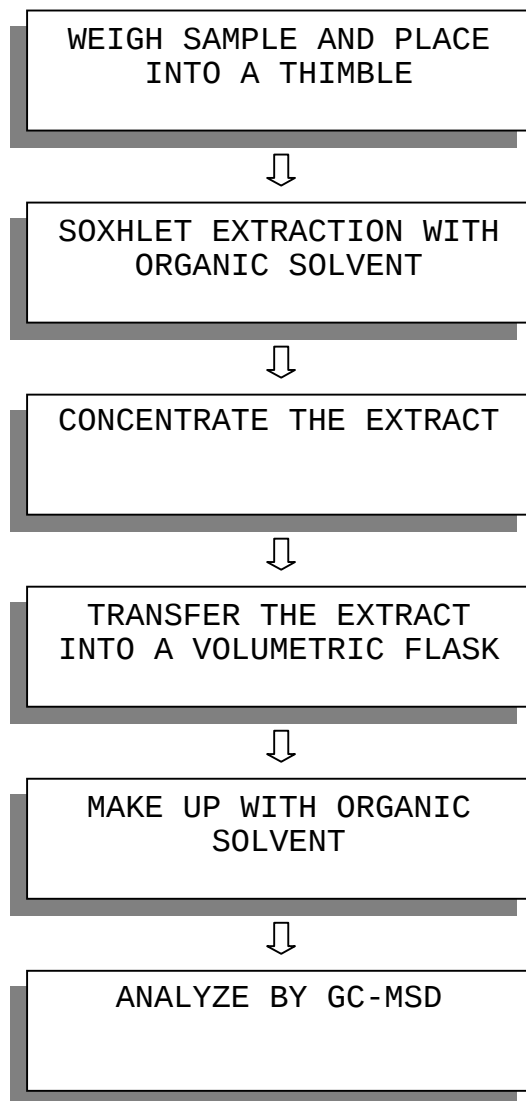
TESTING ITEM TE	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



TO BE CONTINUED

TEST REPORT

NUMBER: SH AH00346635

TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

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

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

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

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

5 PHT HALATE CONTENT TEST

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

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

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

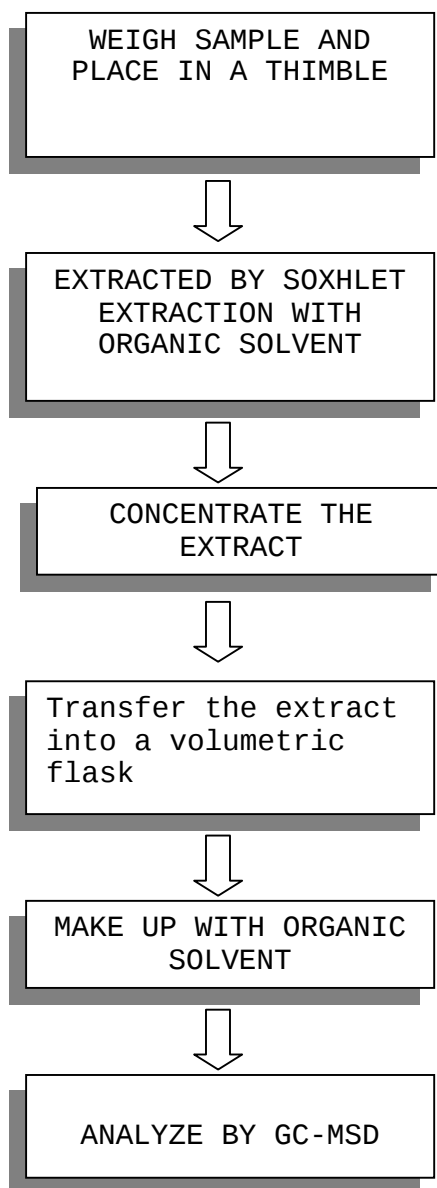
DETECTION LIMIT = 0.01%(W/W)
ND = NOT DETECTED

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

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

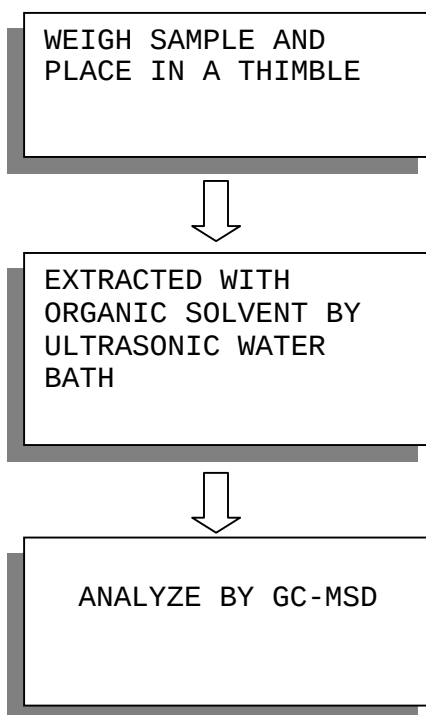
TEST FOR PHTHALATES CONTENTS (EN14372)



TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

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



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345635

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

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

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

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

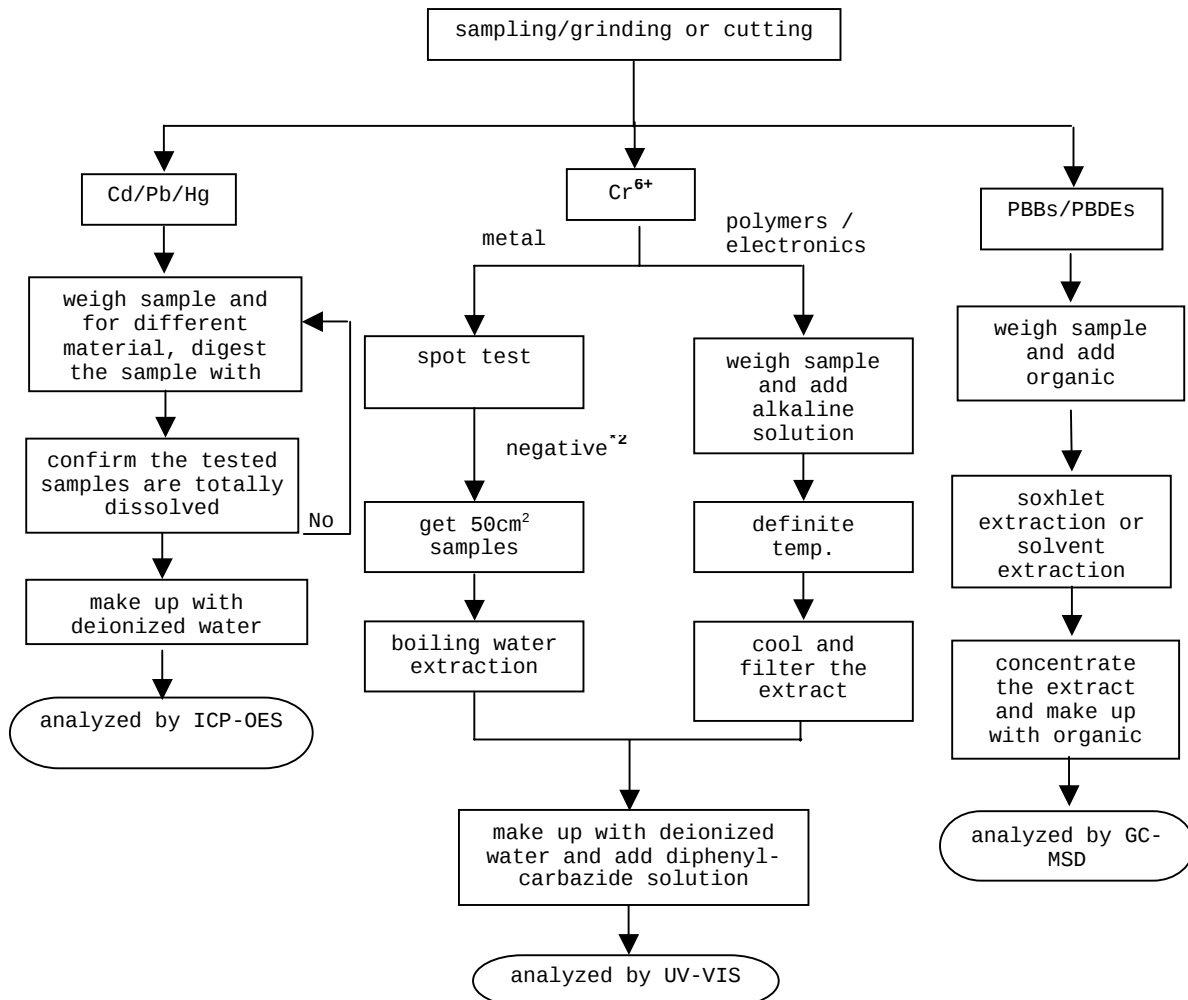
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Contents

Reference Standard: IEC 62321 edition 1.0:2008



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ ,HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

TESTS CONDUCTED

2 (I) Test Result Summary :

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

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

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

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

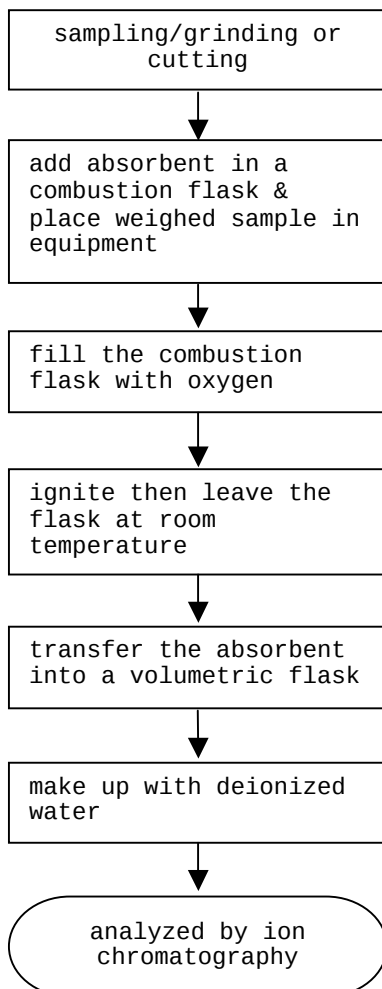
Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345635

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

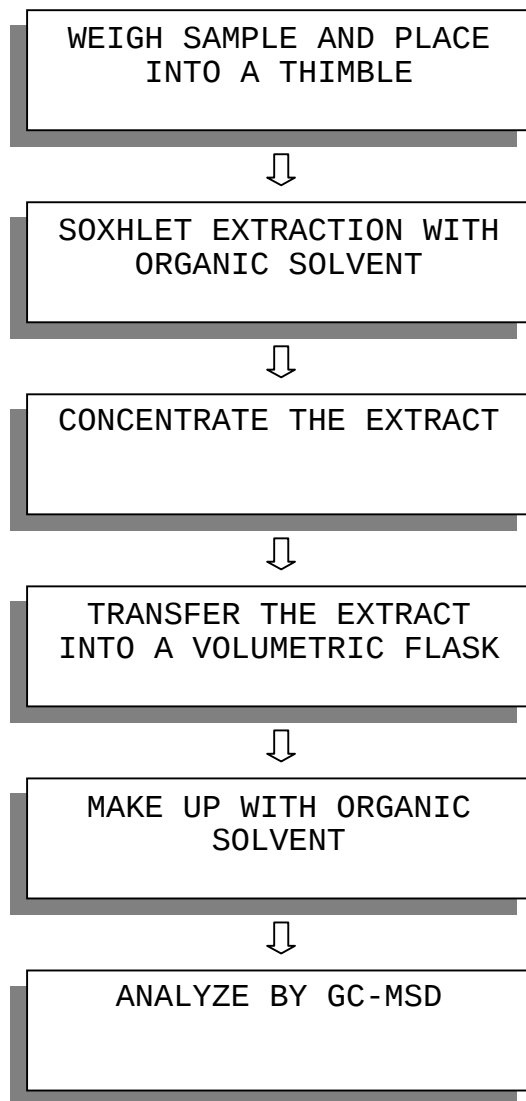
TESTING ITEM TE	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT

*****
TO BE CONTINUED

TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

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

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

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

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

5 PHT HALATE CONTENT TEST

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

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

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

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

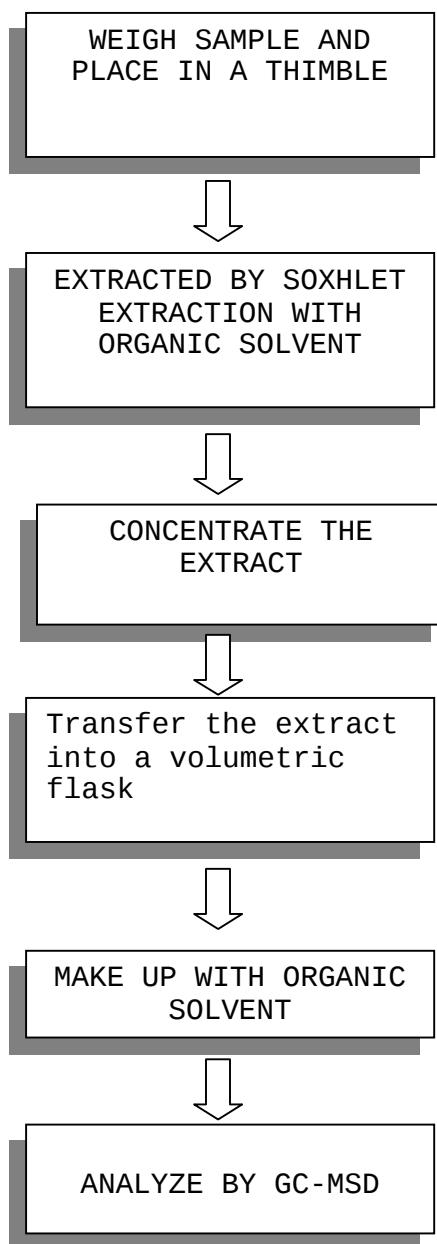
DATE SAMPLE RECEIVED: OCT.15, 2012
TESTING PERIOD : OCT.15, 2012 TO OCT.18, 2012

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)

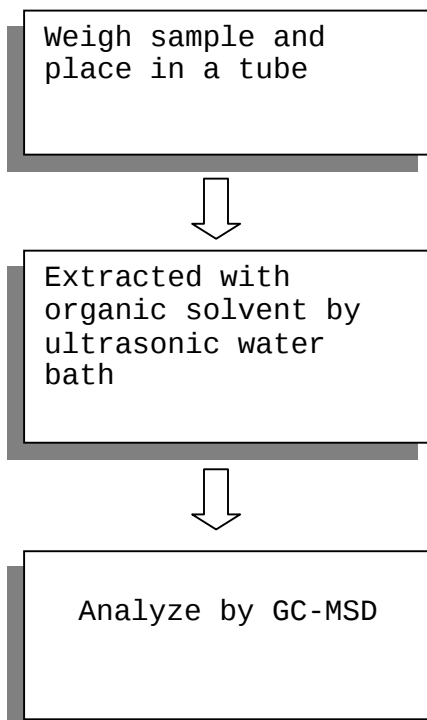


TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



TO BE CONTINUED

TESTS CONDUCTED



SHAH00345635

END OF REPORT

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TEST REPORT

NUMBER: SH AH00345662

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

DATE: OCT 26, 2012

SAMPLE DESCRIPTION:

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

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

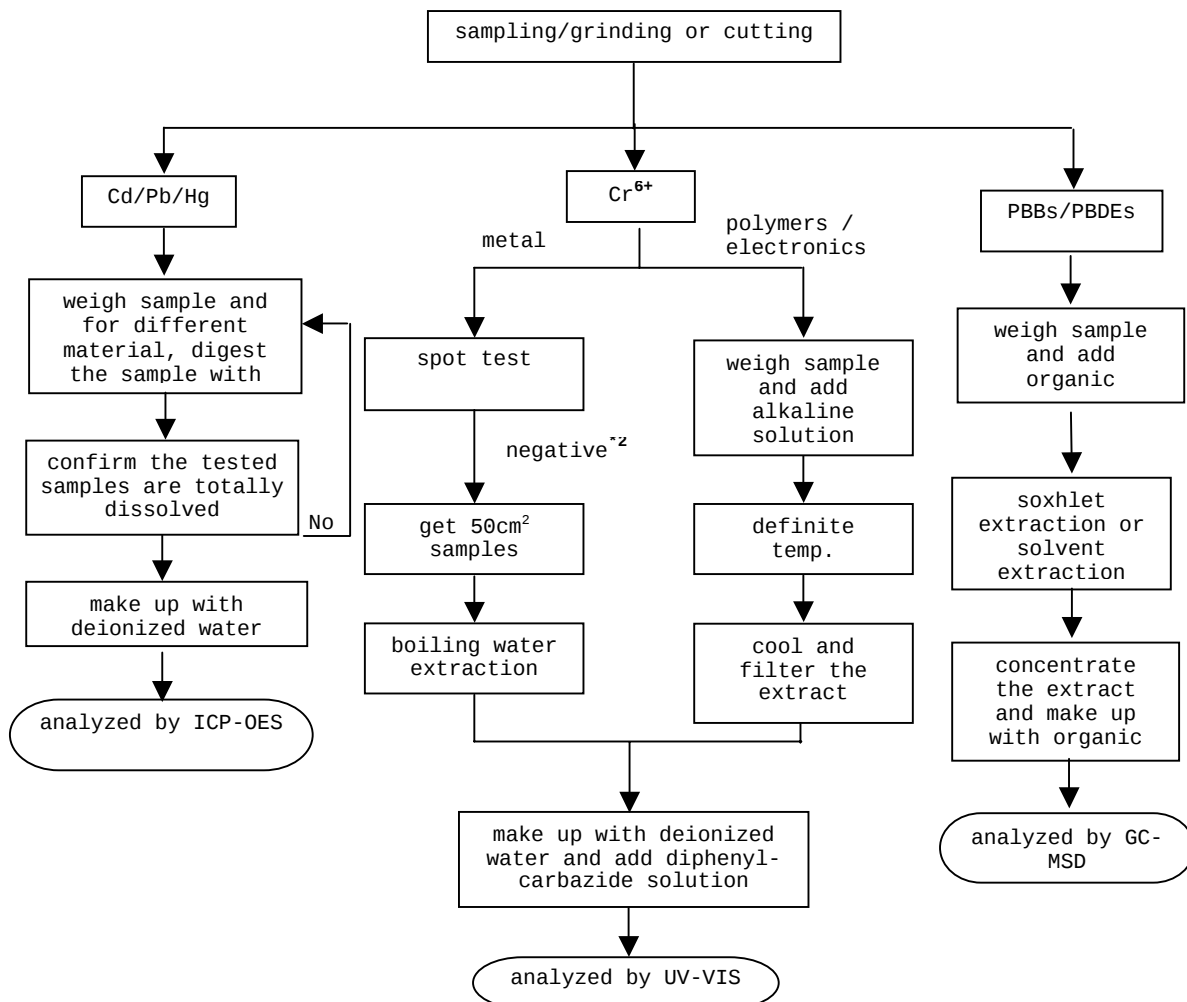
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Contents

Reference Standard: IEC 62321 edition 1.0:2008



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ ,HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345662

TESTS CONDUCTED

2 (I) Test Result Summary :

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

Remarks: ppm = Parts per million = mg/kg

N D = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

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

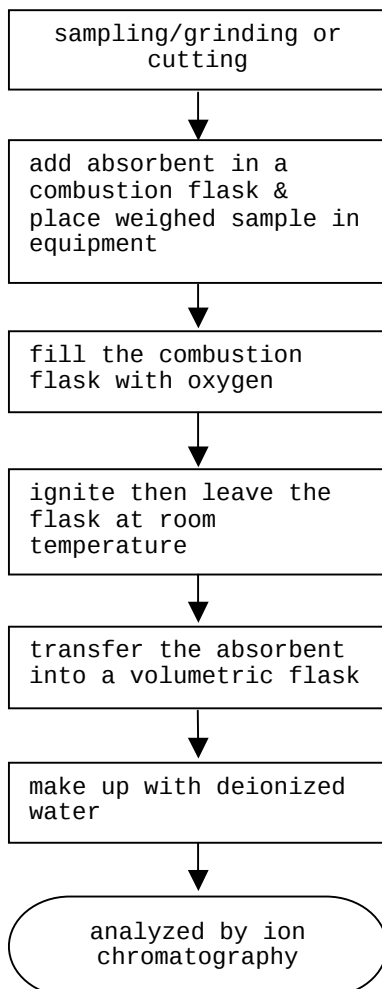
Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345662

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

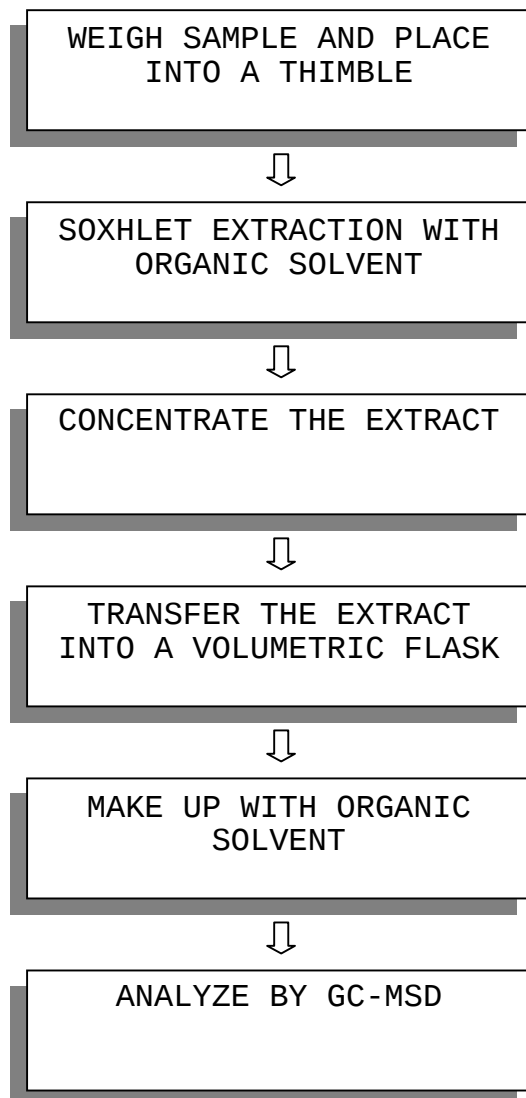
TESTING ITEM T	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT

*****
TO BE CONTINUED

TESTS CONDUCTED

4 PHthalate Content Test

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

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

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

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

5 PHthalate Content Test

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

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

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

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

DATE SAMPLE RECEIVED: OCT.15, 2012

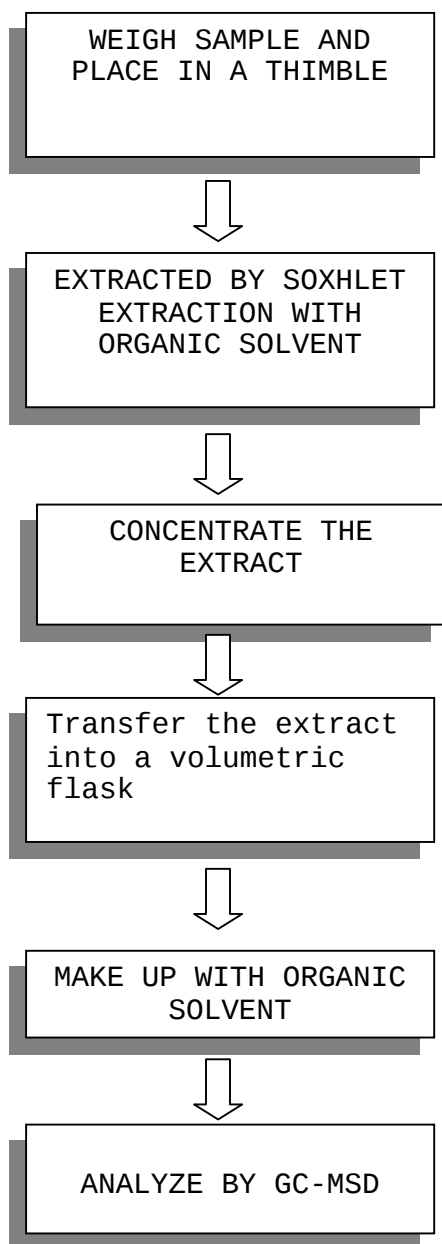
TESTING PERIOD : OCT.15, 2012 TO OCT.19, 2012

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)

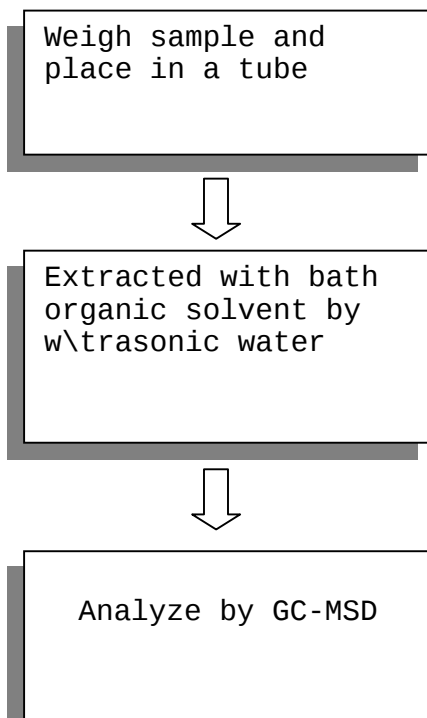


TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345415

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

DATE: OCT 26, 2012

SAMPLE DESCRIPTION:

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

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

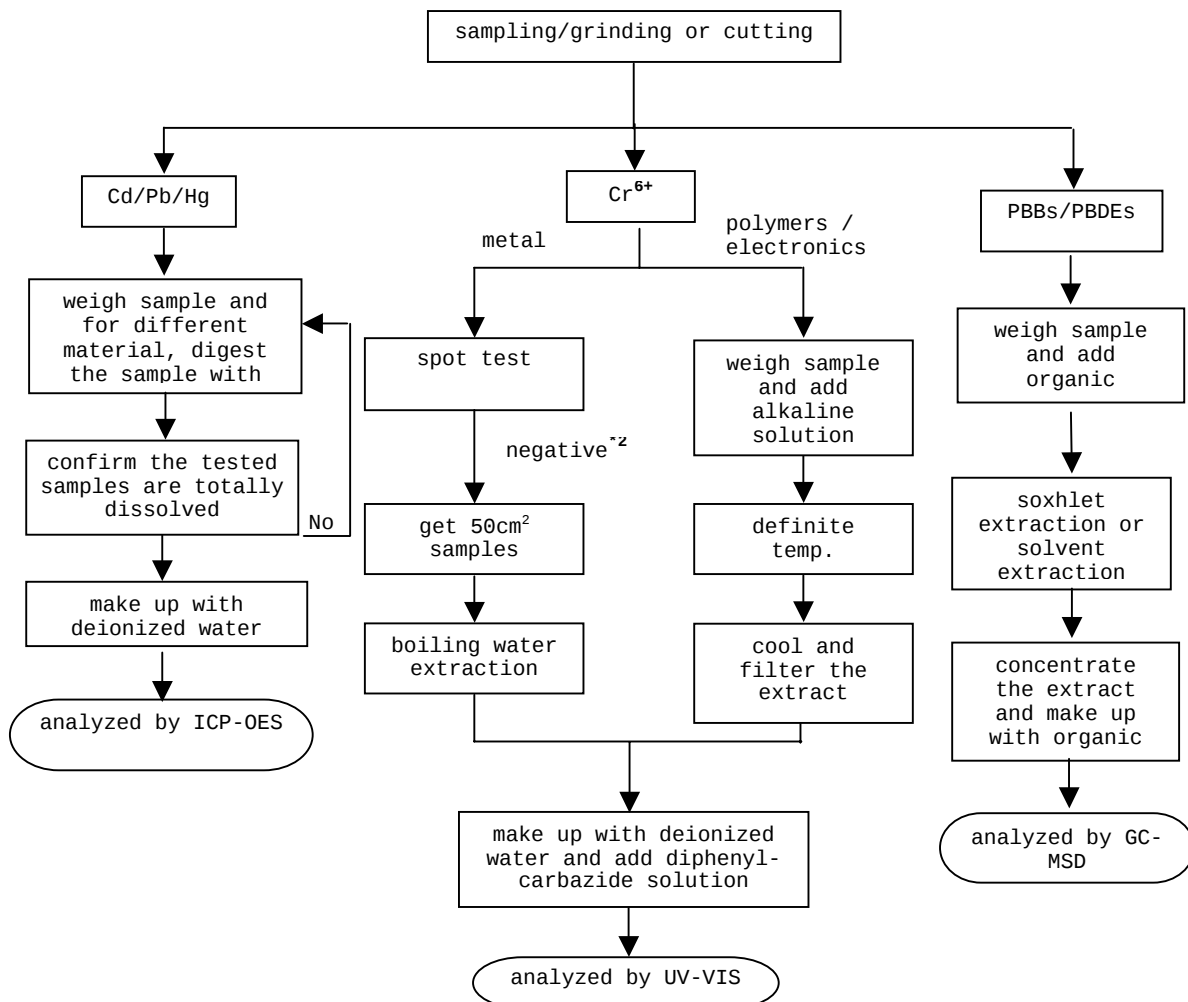
Testing Item T	Testing Method R	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in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

Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED
(IV) Measurement Flowchart:

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



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO ₃	HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345415

TESTS CONDUCTED

2 (I) Test Result Summary :

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

Remarks: ppm = Parts per million = mg/kg

N D = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

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

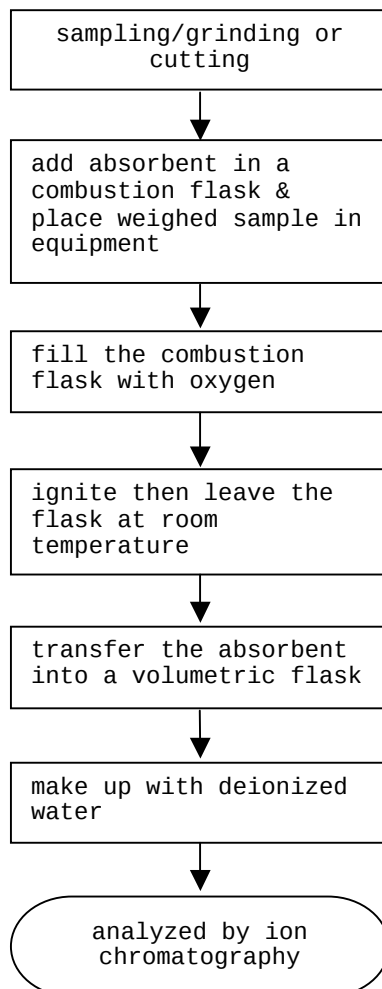
Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345415

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

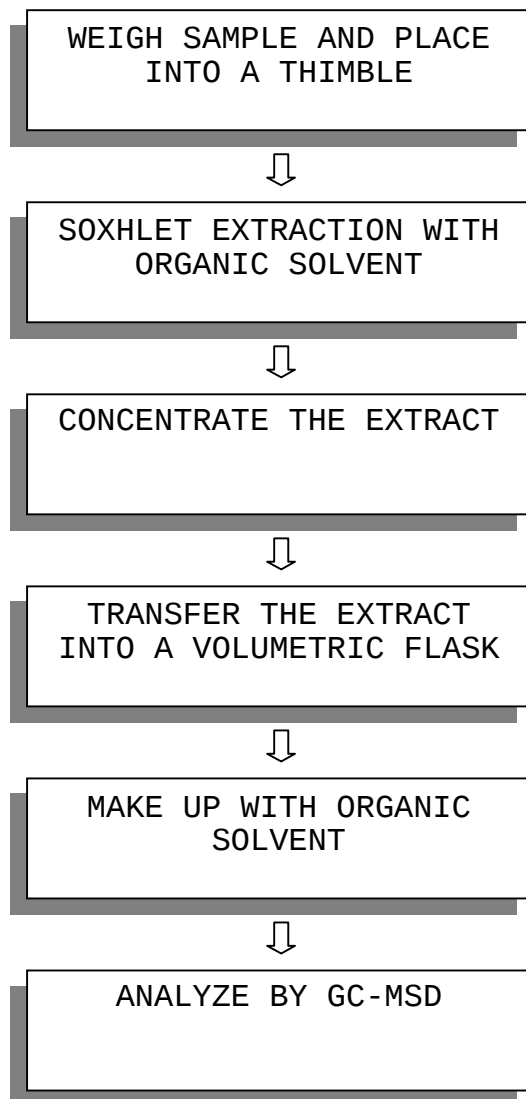
(B) TEST METHOD :

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

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



TO BE CONTINUED

TESTS CONDUCTED

4 PHthalate Content Test

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

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

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

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

5 PHthalate Content Test

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

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

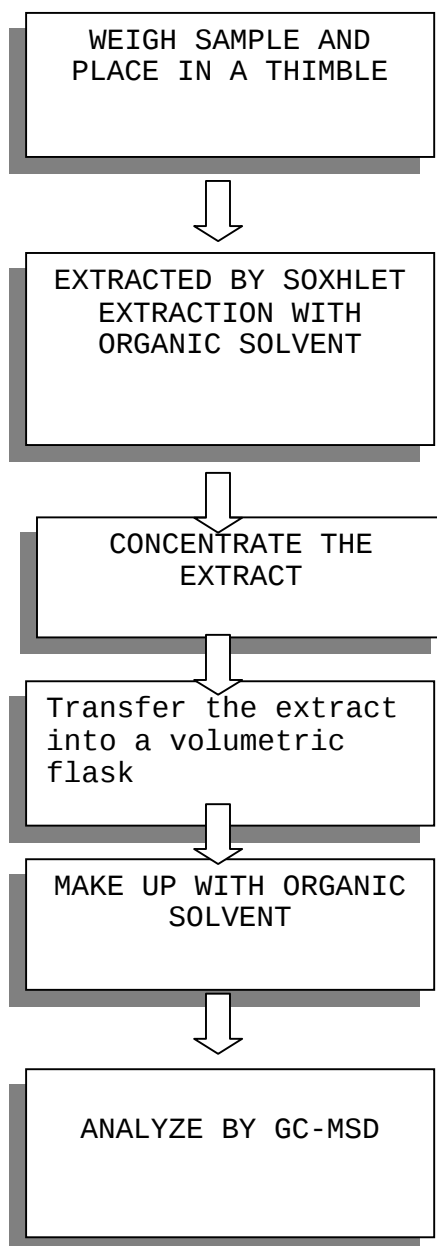
REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT 2008 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

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

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

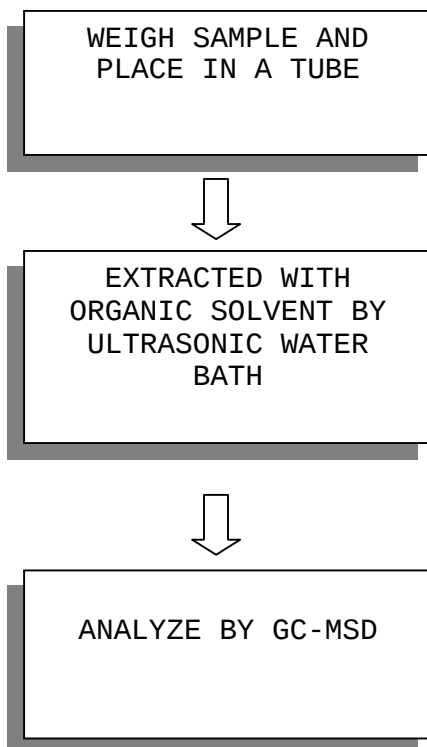
TEST FOR PHTHALATES CONTENTS (EN14372)



TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

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



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345432

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

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

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

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

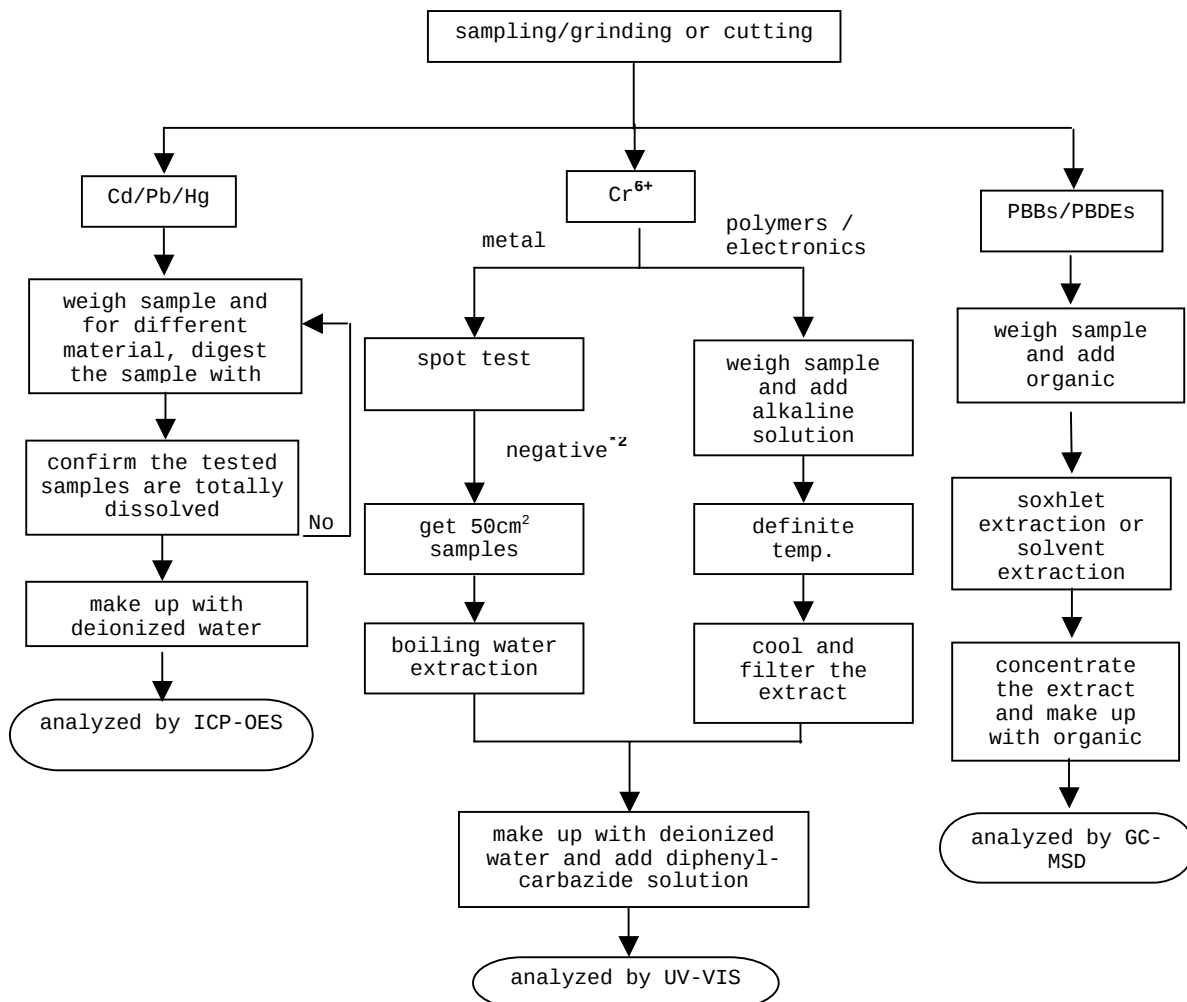
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Contents

Reference Standard: IEC 62321 edition 1.0:2008



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ ,HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345432

TESTS CONDUCTED

2 (I) Test Result Summary :

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

Remarks: ppm = Parts per million = mg/kg

N D = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

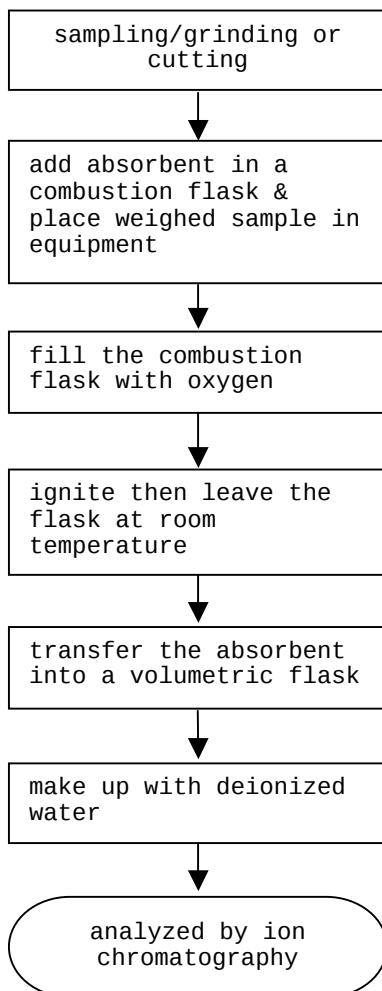
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content

Reference Standard: EN 14582



TO BE CONTINUED

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

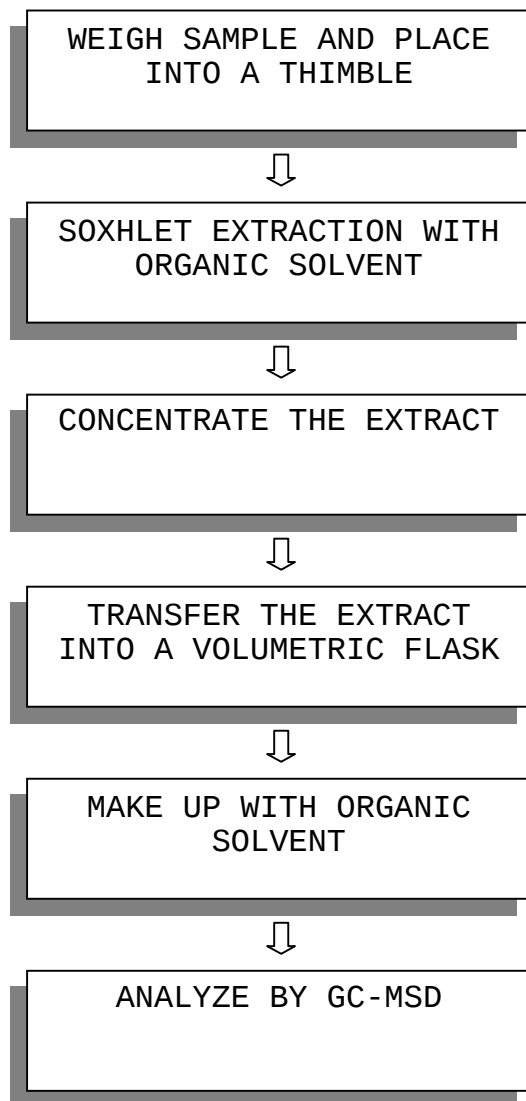
<u>TESTING ITEM T</u>	<u>TESTING METHOD</u>	<u>REPORTING LIMIT</u>
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT

*****
TO BE CONTINUED

TESTS CONDUCTED

4 PHthalate Content Test

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

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

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

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

5 PHthalate Content Test

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

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

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

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

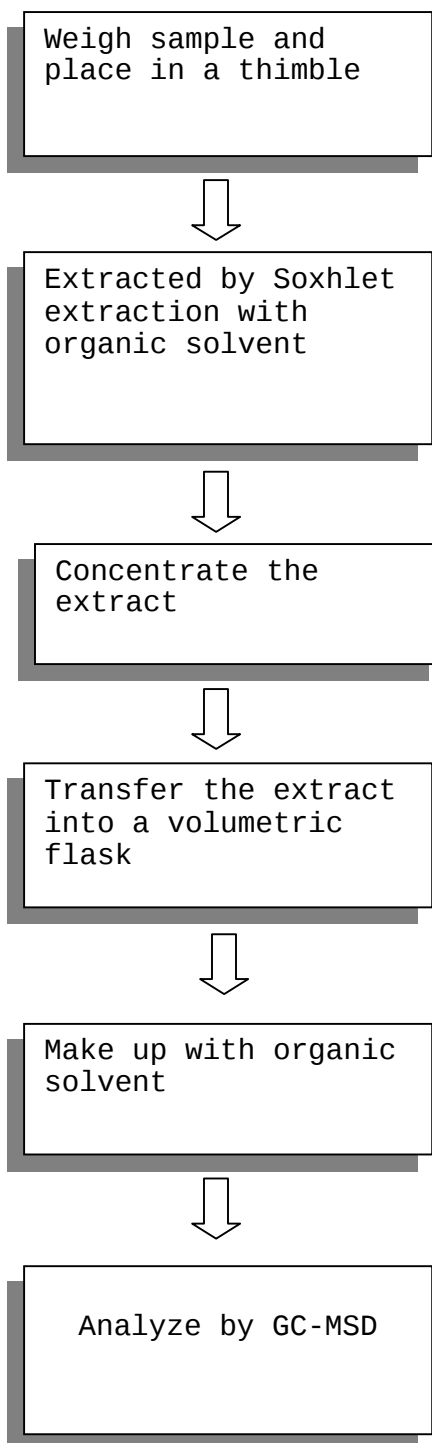
DATE SAMPLE RECEIVED: OCT.15, 2012

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

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

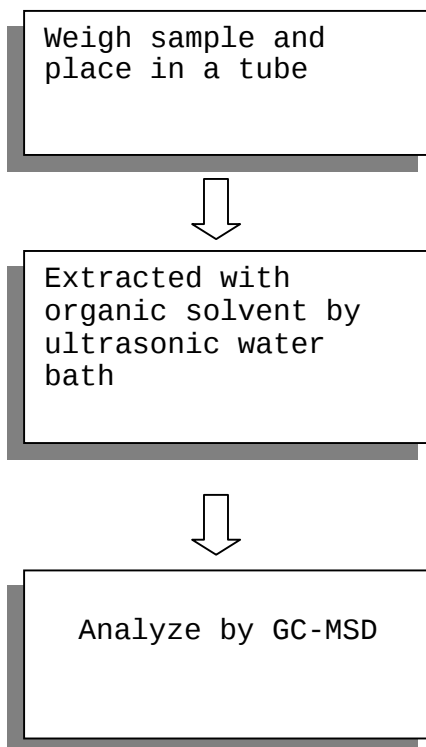
TEST FOR PHTHALATES CONTENTS (EN14372)



TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

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



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345639

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

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

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

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

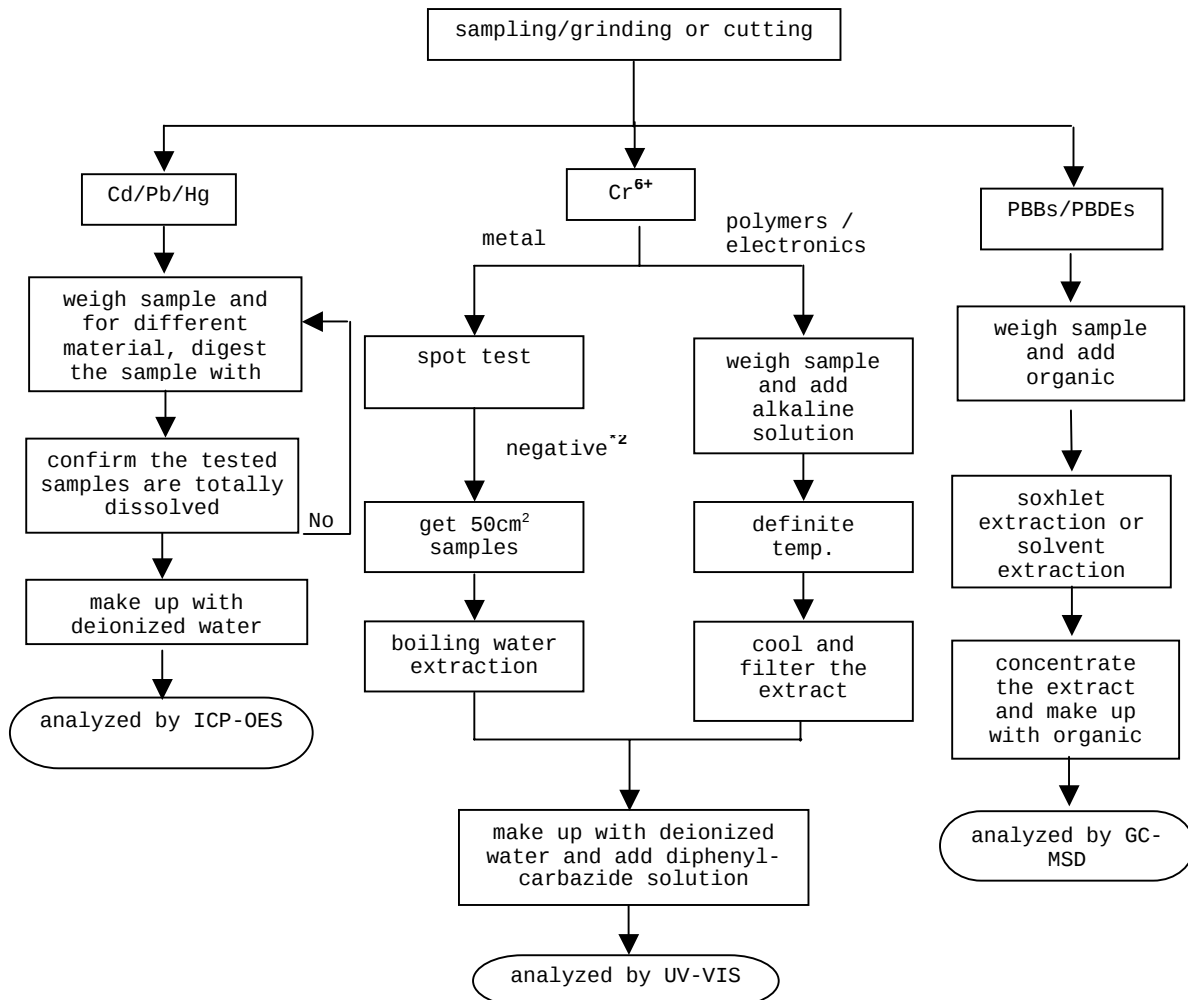
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Contents

Reference Standard: IEC 62321 edition 1.0:2008



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345639

TESTS CONDUCTED

2 (I) Test Result Summary :

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

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

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

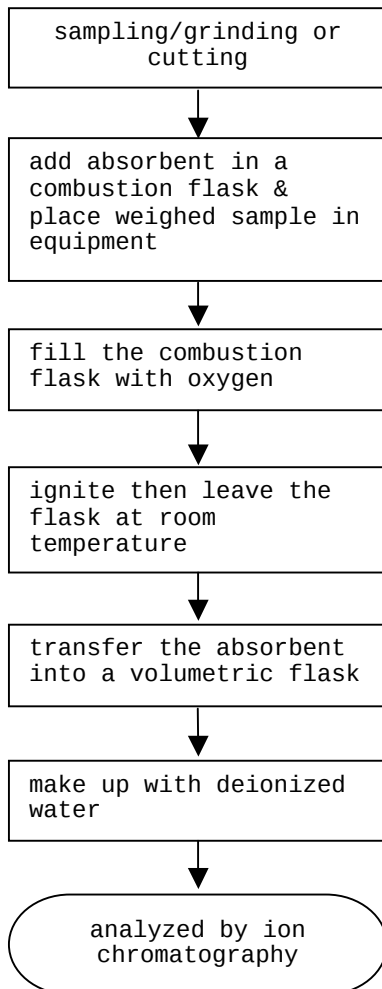
Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345639

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

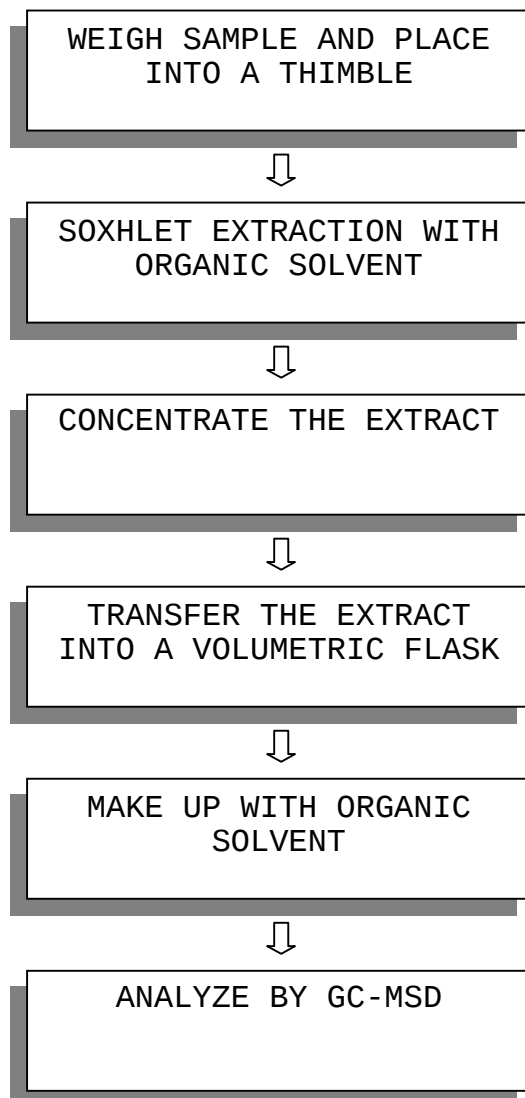
TESTING ITEM TE	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT

*****
TO BE CONTINUED

TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

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

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

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

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

5 PHT HALATE CONTENT TEST

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

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

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

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

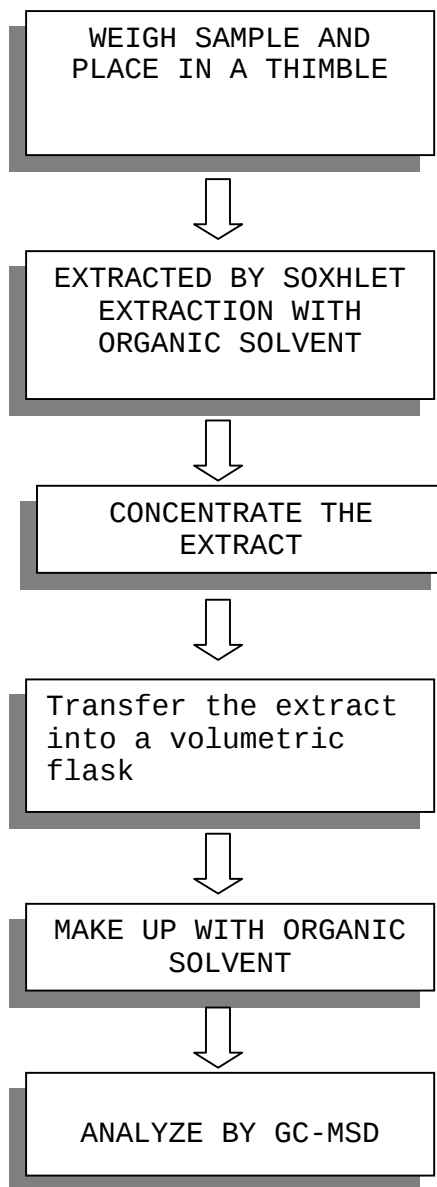
DATE SAMPLE RECEIVED : OCT.15, 2012
TESTING PERIOD : OCT.15, 2012 TO OCT.18, 2012

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)

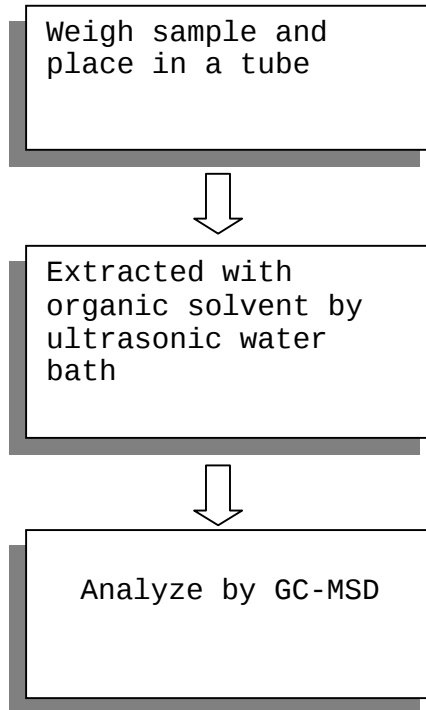


TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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TEST REPORT

NUMBER: SH AH00345659

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

DATE: OCT 26, 2012

SAMPLE DESCRIPTION:

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

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED
1 (I) Test Result Summary :

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

(III) Test Method:

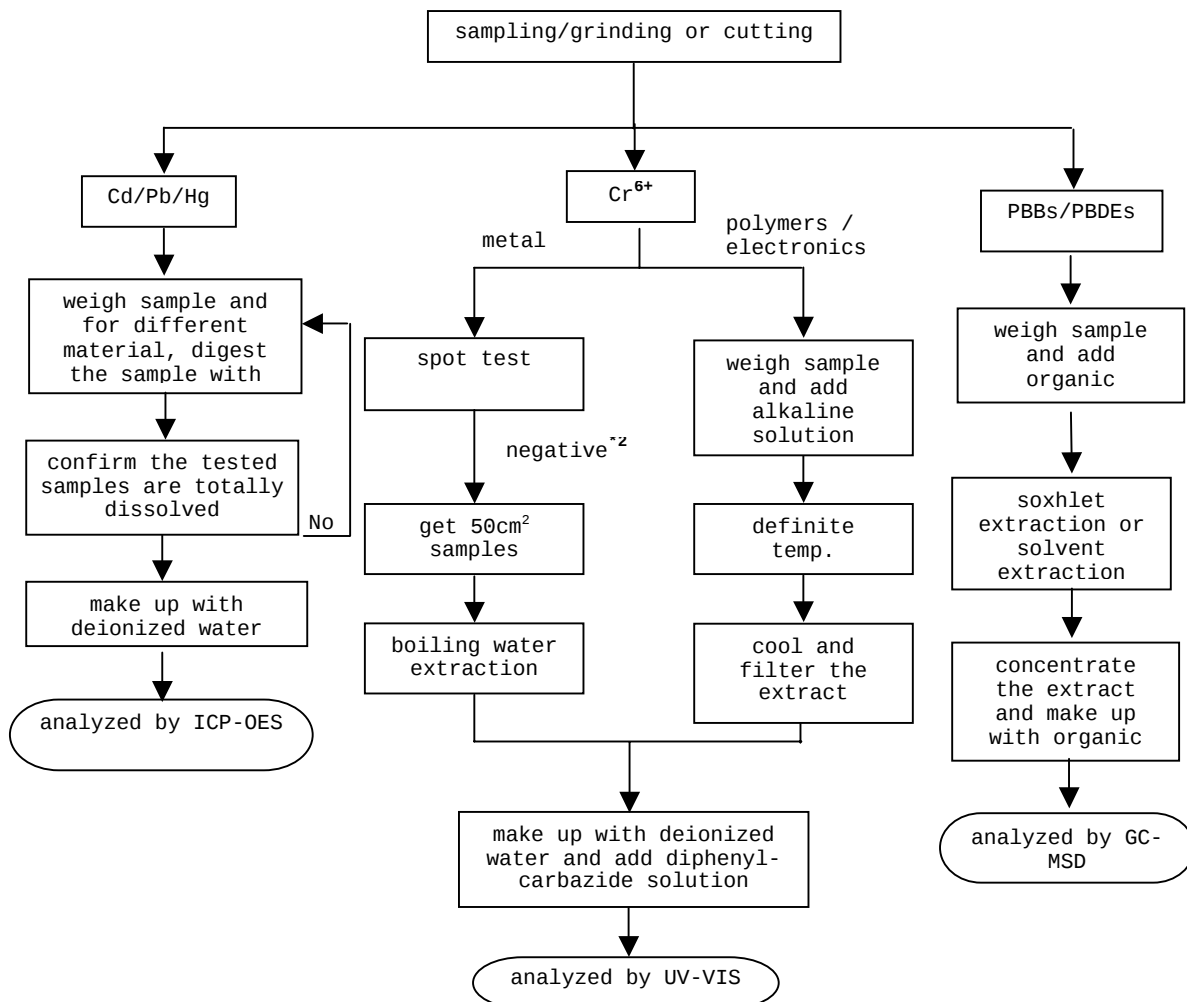
Testing Item T	Testing Method R	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in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

Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED
(IV) Measurement Flowchart:

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



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345659

TESTS CONDUCTED

2 (I) Test Result Summary :

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

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

N D = Not detected

Responsibility Of Chemist : Ken He

(III) Test Method:

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

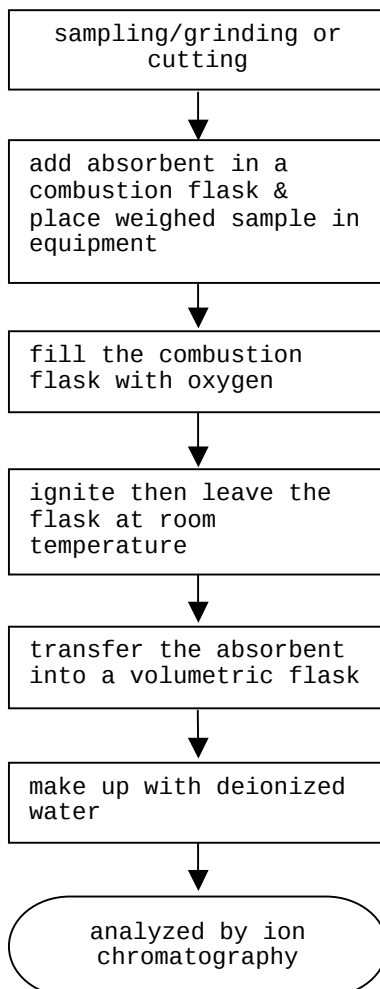
Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345659

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

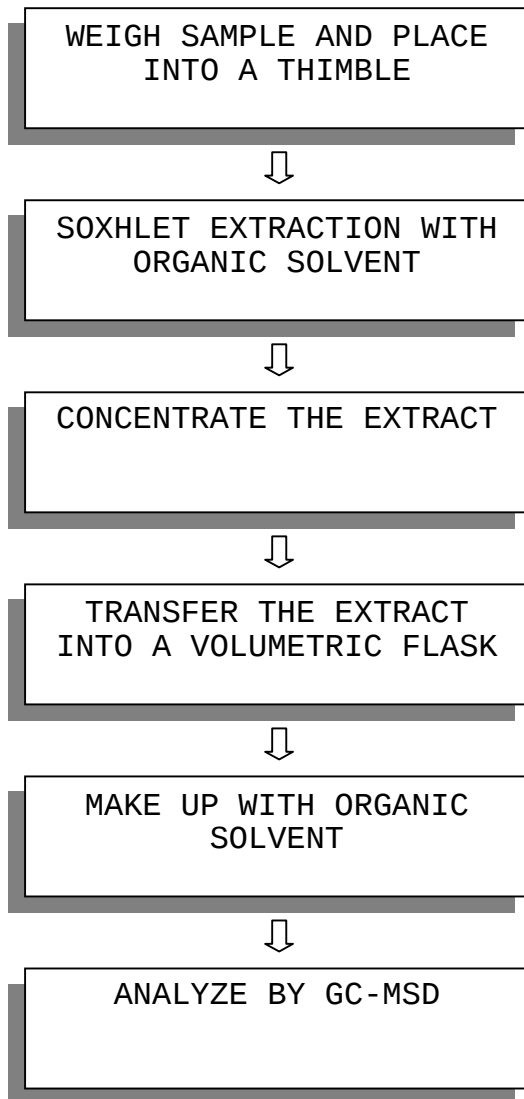
(B) TEST METHOD :

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

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



TO BE CONTINUED

TESTS CONDUCTED

4 PHthalate Content Test

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

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

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

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

5 PHthalate Content Test

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

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

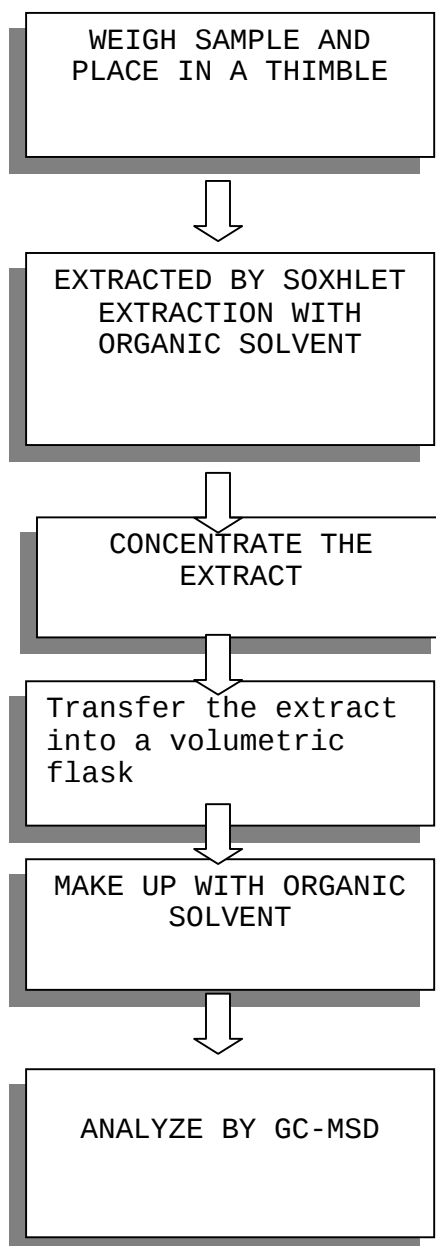
REMARK: THE ABOVE LIMIT WAS QUOTED ACCORDING TO US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT 2008 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

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

TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

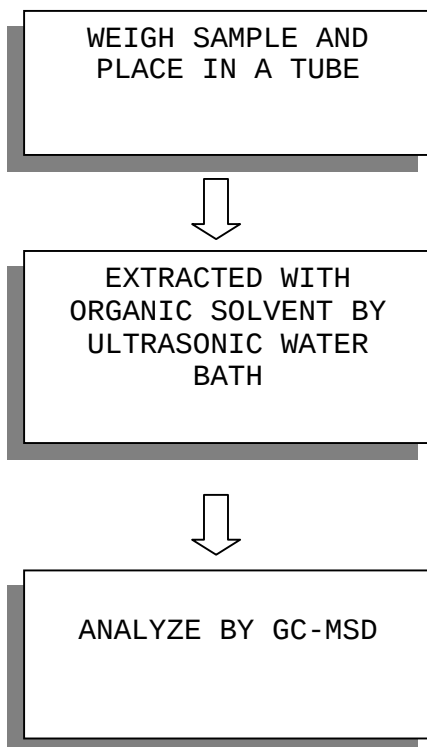
TEST FOR PHTHALATES CONTENTS (EN14372)



TO BE CONTINUED

TESTS CONDUCTED
MEASUREMENT FLOWCHART:

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



TO BE CONTINUED

TESTS CONDUCTED



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TEST REPORT

NUMBER: SH AH00345663

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

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

ONE (1) SUBMITTED SAMPLE SAID TO BE **VIOLET INK.**
PART DESCRIPTION : INK-VIOLET.
PART NUMBER : 425911.
DATE SAMPLE RECEIVED : OCTOBER.15, 2012.
DATE TEST STARTED : OCTOBER.15, 2012.

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

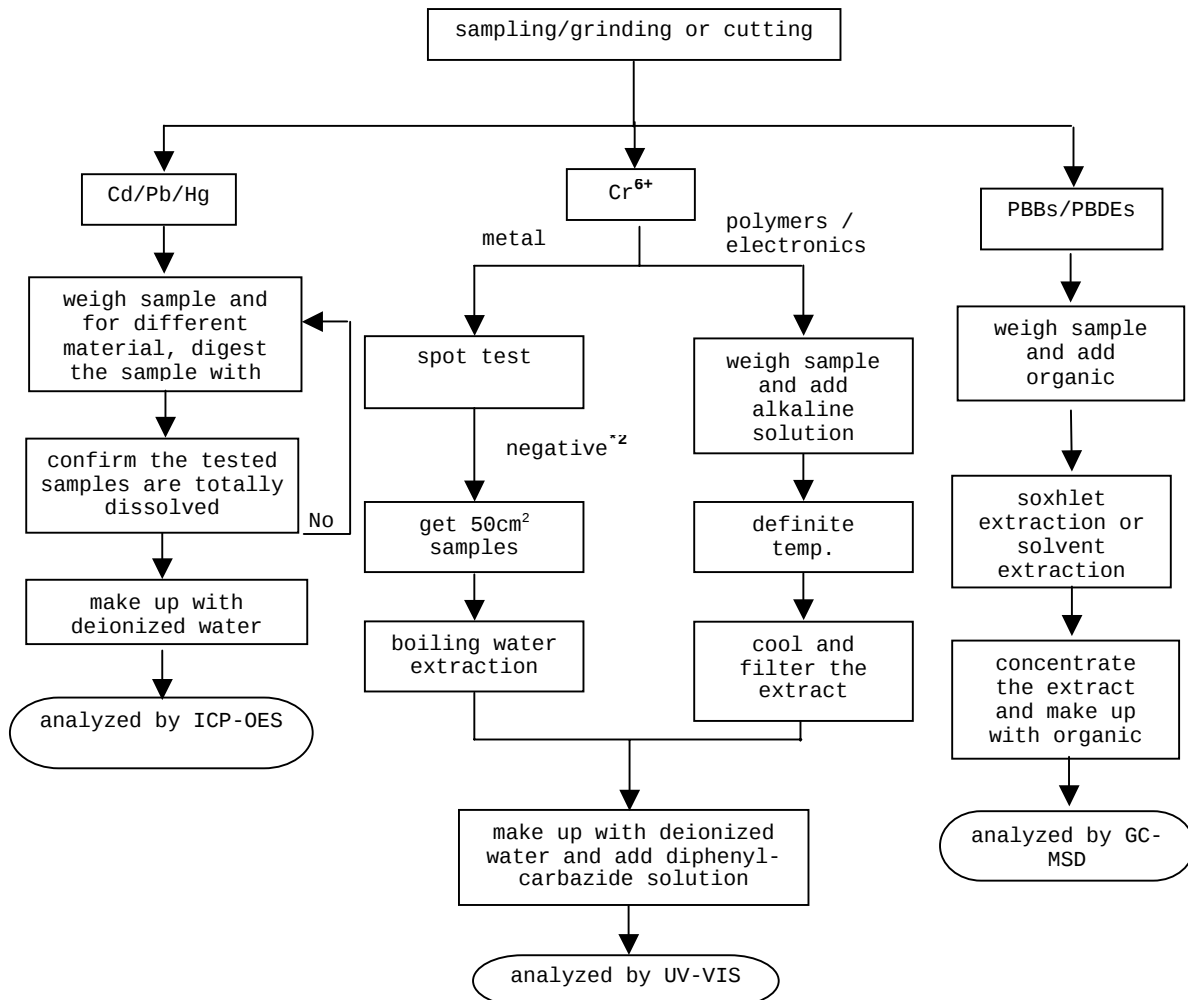
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Contents

Reference Standard: IEC 62321 edition 1.0:2008



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ ,HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345663

TESTS CONDUCTED

2 (I) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	6800
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

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

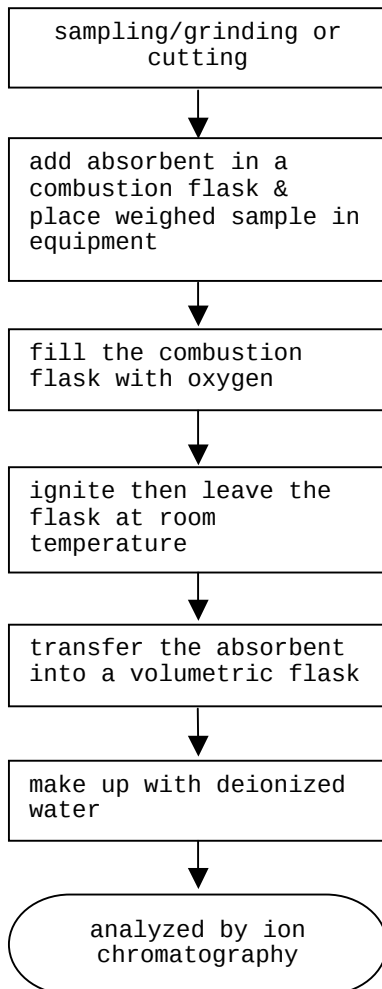
Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345663

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

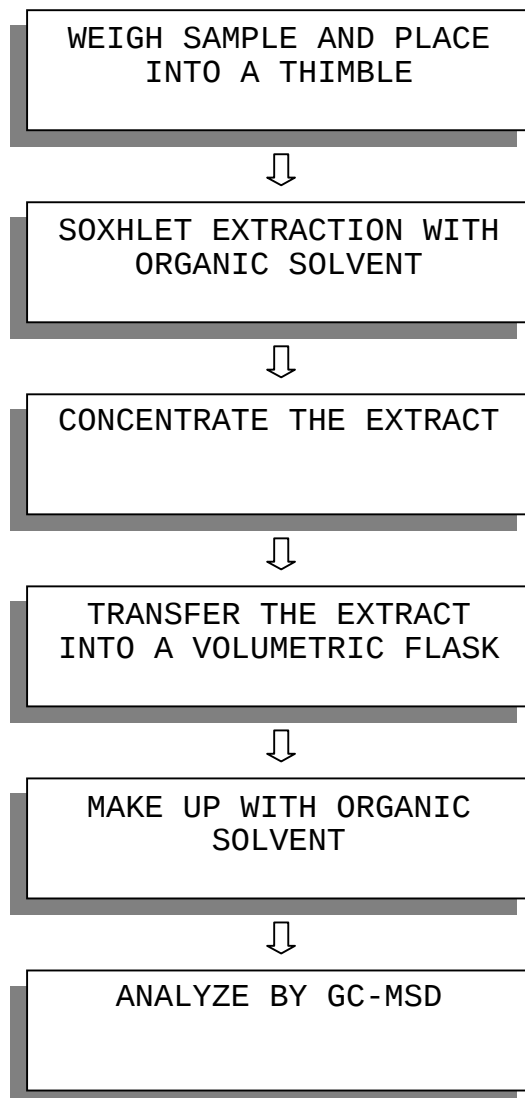
TESTING ITEM TE	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT

*****
TO BE CONTINUED

TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

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

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

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

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

5 PHT HALATE CONTENT TEST

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

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

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

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

DATE SAMPLE RECEIVED: OCT.15, 2012

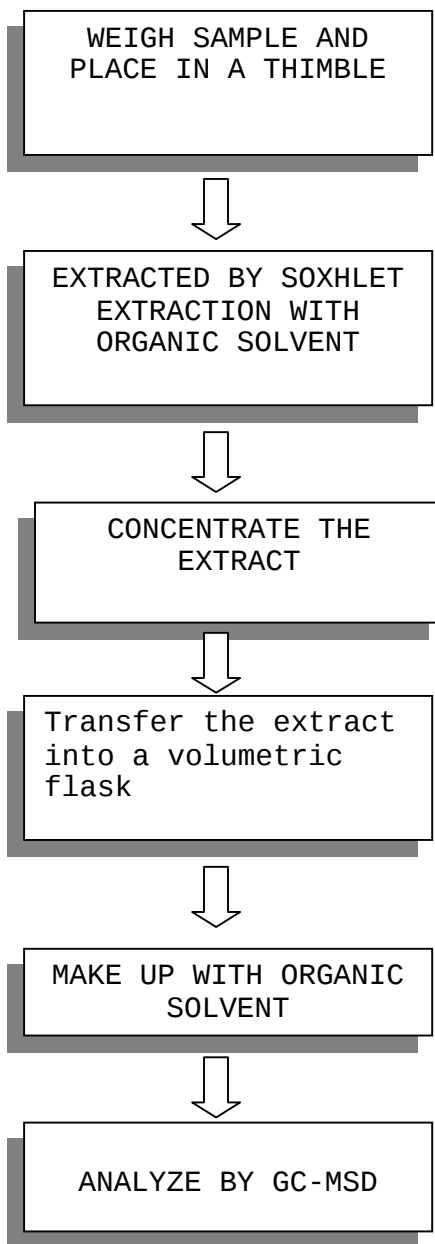
TESTING PERIOD : OCT.15, 2012 TO OCT.23, 2012

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)

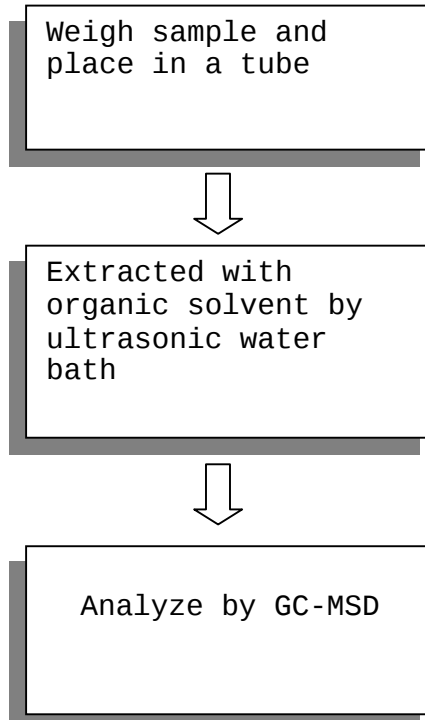


TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



TO BE CONTINUED

TESTS CONDUCTED



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TEST REPORT

NUMBER: SH AH00345657

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

DATE: OCT 29, 2012

SAMPLE DESCRIPTION:

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

TESTS CONDUCTED:

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

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

TESTS CONDUCTED

1 (I) Test Result Summary :

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

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

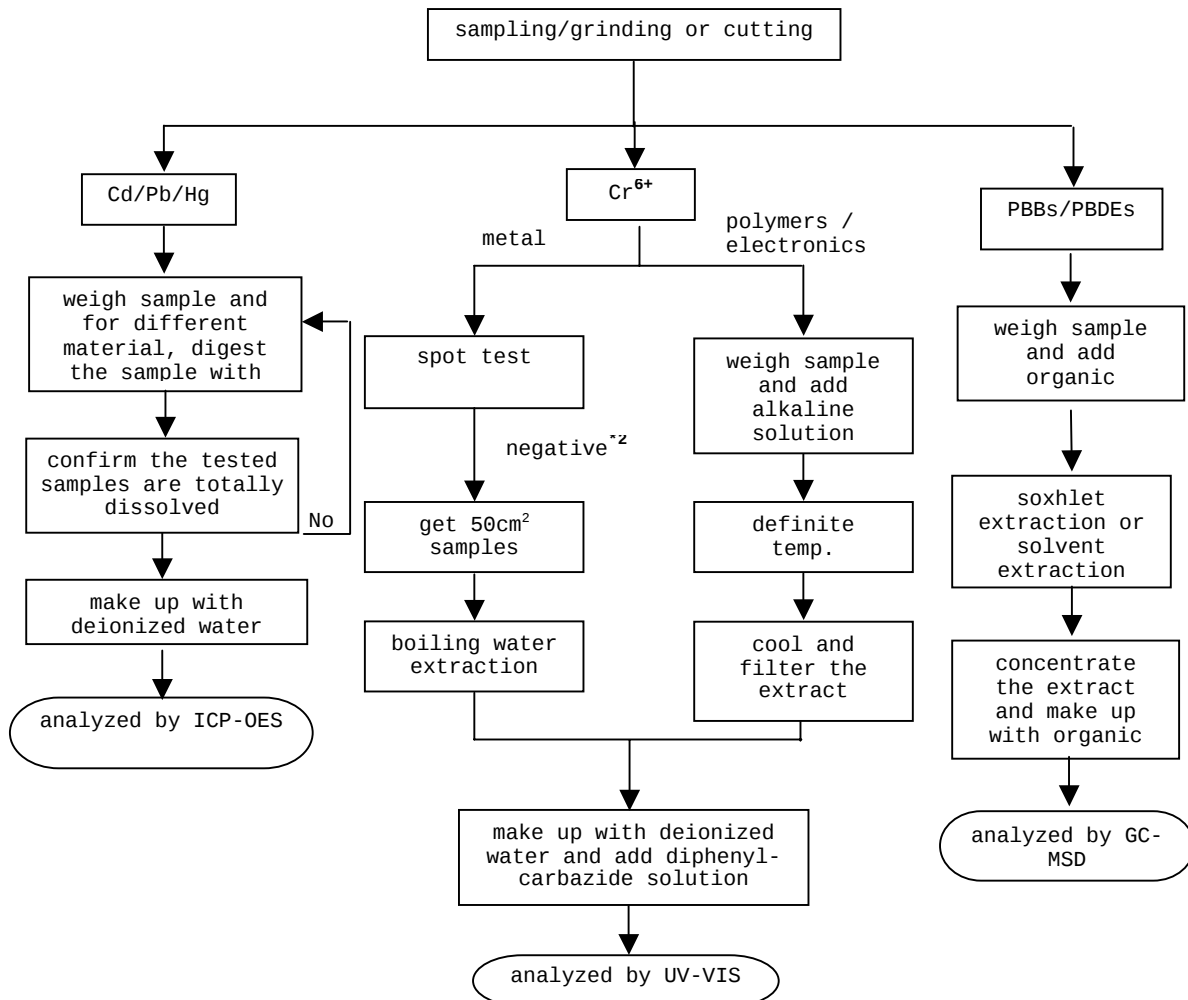
TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Contents

Reference Standard: IEC 62321 edition 1.0:2008



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO ₃ ,HCl,HF,H ₂ O ₂ ,H ₃ BO ₃
Metals HNO	₃ HCl,HF
Electronics H	NO ₃ ,HCl,H ₂ O ₂ ,HBF ₄

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

TO BE CONTINUED

**TEST REPORT**

NUMBER: SH AH00345657

TESTS CONDUCTED

2 (I) Test Result Summary :

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

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

Responsibility Of Chemist : Leaf Liu

(III) Test Method:

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

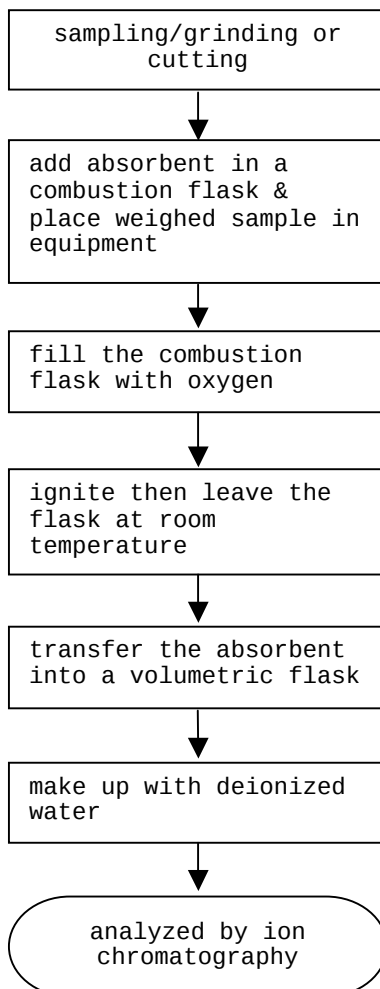
Remark: Reporting limit = Quantitation limit of analyte in sample

TO BE CONTINUED

TESTS CONDUCTED

(IV) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



TO BE CONTINUED



TEST REPORT

NUMBER: SH AH00345657

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

REMARKS:

ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

(B) TEST METHOD :

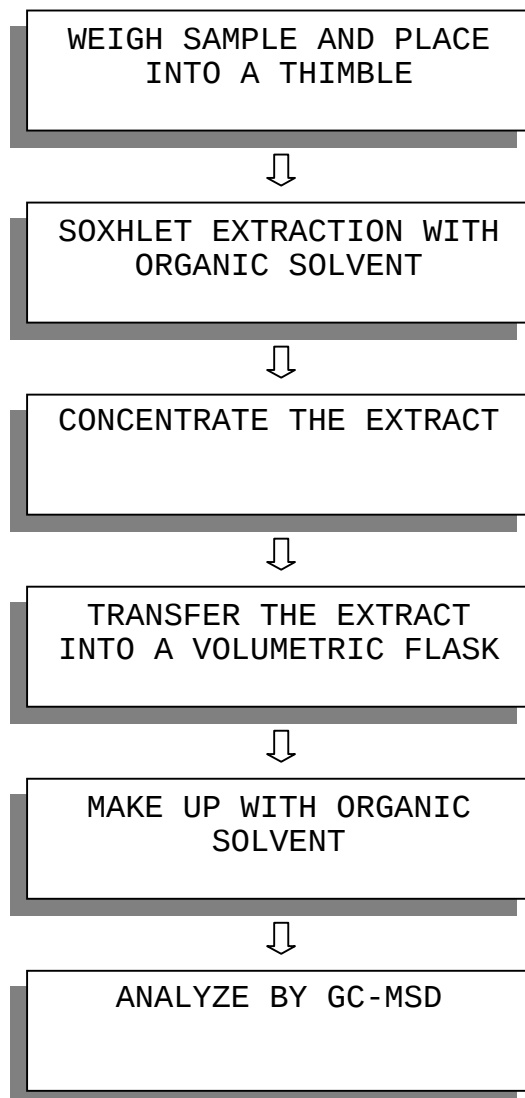
TESTING ITEM TE	TESTING METHOD	REPORTING LIMIT
HBCD (HEXABROMOCYCLODODECANE)	WITH REFERENCE TO USEPA 3540C, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS	10 ppm

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT

*****
TO BE CONTINUED

TEST REPORT

NUMBER: SH AH00345657

TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

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

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

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

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

5 PHT HALATE CONTENT TEST

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

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

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

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

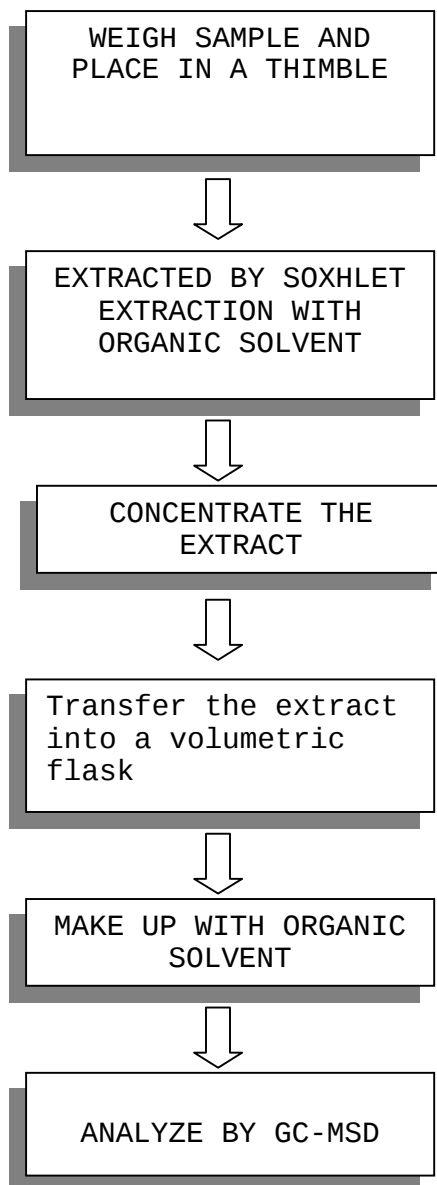
DATE SAMPLE RECEIVED : OCT.15, 2012
TESTING PERIOD : OCT.15, 2012 TO OCT.19, 2012

TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)

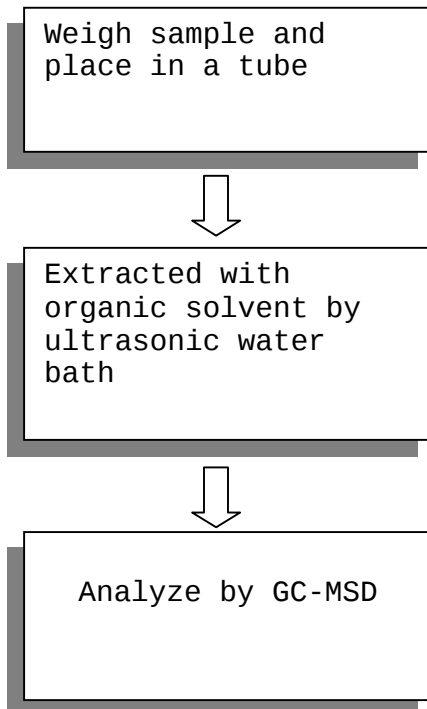


TO BE CONTINUED

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



TO BE CONTINUED

TESTS CONDUCTED



END OF REPORT

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Test Report

No. : CE/2012/14843A Date : 2012/02/04 Page : 1 of 24

CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



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

Sample Description : CERAMIC
Style/Item No. : C610
Sample Receiving Date : 2012/01/30
Testing Period : 2012/01/30 TO 2012/02/04

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

Conclusion : Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Hexavalent Chromium Cr(VI), PBBs and PBDEs comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.


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

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Test Report

No. : CE/2012/14843A Date : 2012/02/04 Page : 2 of 24

CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Result(s)

PART NAME No.1 : WHITE CERAMIC

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
Cadmium (Cd)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.	100
Lead (Pb)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	178	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.	1000
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.	1000
Polychlorinated Biphenyls (PCBs) (CAS No.: 1336-36-3)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.5	n.d.	-
Polychlorinated Terphenyls (PCTs)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.5	n.d.	-
Polychlorinated Naphthalene (PCNs)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	5	n.d.	-
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (CAS No.: 85535-84-8)	%	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.01	n.d.	-
Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	With reference to US EPA 3540C: 1996 method for PFOS Content. Analysis was performed by LC/MS.	10	n.d.	-
PFOA (CAS No.: 335-67-1)	mg/kg	With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.	-
Formaldehyde (CAS No.: 50-00-0)	mg/kg	With reference to ISO 17226-1(2008). Analysis was performed by HPLC/DAD.	3	n.d.	-
PVC	**	Analysis was performed by FTIR and FLAME Test.	-	Negative	-

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Test Report

No. : CE/2012/14843A Date : 2012/02/04 Page : 3 of 24

CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
BBP (Benzyl butyl phthalate) (CAS No.: 85-68-7)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.	-
DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.	-
DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
Monomethyl dibromodiphenyl methane (DBBT)	mg/kg	With reference to US EPA 8270D method. Analysis was performed by GC/MS.	0.5	n.d.	-
Monomethyl dichlorodiphenyl methane (Ugilec121)	mg/kg	With reference to US EPA 8270D method. Analysis was performed by GC/MS.	0.5	n.d.	-
Monomethyl tetrachlorodiphenyl methane (Ugilec141)	mg/kg	With reference to US EPA 8270D method. Analysis was performed by GC/MS.	0.5	n.d.	-
Organic-tin compounds					
Tributyl Tin (TBT)	mg/kg	With reference to DIN 38407-13. Analysis was performed by GC/FPD.	0.03	n.d.	-
Triphenyl Tin (TphT)	mg/kg	With reference to DIN 38407-13. Analysis was performed by GC/FPD.	0.03	n.d.	-
Halons					
Halon-1211 (CAS No.: 353-59-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Halon-1301 (CAS No.: 75-63-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Halon-2402 (CAS No.: 124-73-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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Test Report

No. : CE/2012/14843A Date : 2012/02/04 Page : 4 of 24

CERAMTEC GMBH
MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result	Limit
				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)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.	-
Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.	-
Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.	-
Asbestos					
Actinolite (CAS No.: 77536-66-4)	%	With reference to EPA 600/R-93/116 method. Analysis was performed by SM, PLM and XRD.	1	Negative	-
Amosite (CAS No.: 12172-73-5)	%	With reference to EPA 600/R-93/116 method. Analysis was performed by SM, PLM and XRD.	1	Negative	-
Anthophyllite (CAS No.: 77536-67-5)	%	With reference to EPA 600/R-93/116 method. Analysis was performed by SM, PLM and XRD.	1	Negative	-
Chrysotile (CAS No.: 12001-29-5)	%	With reference to EPA 600/R-93/116 method. Analysis was performed by SM, PLM and XRD.	1	Negative	-
Crocidolite (CAS No.: 12001-28-4)	%	With reference to EPA 600/R-93/116 method. Analysis was performed by SM, PLM and XRD.	1	Negative	-
Tremolite (CAS No.: 77536-68-6)	%	With reference to EPA 600/R-93/116 method. Analysis was performed by SM, PLM and XRD.	1	Negative	-

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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result No.1	Limit
Sum of PBBs	mg/kg	With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.	1000
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.	1000
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.	-
AZO					
1): 4-AMINODIPHENYL (CAS No.: 92-67-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
2): BENZIDINE (CAS No.: 92-87-5)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
3): 4-CHLORO-O-TOLUIDINE (CAS No.: 95-69-2)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
4): 2-NAPHTHYLAMINE (CAS No.: 91-59-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
5): O-AMINOAZOTOLUENE (CAS No.: 97-56-3)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-

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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
6): 2-AMINO-4-NITROTOLUENE (CAS No.: 99-55-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
7): P-CHLOROANILINE (CAS No.: 106-47-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
8): 2,4-DIAMINOANISOLE (CAS No.: 615-05-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
9): 4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 101-77-9)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
10): 3,3'-DICHLOOROBENZIDINE (CAS No.: 91-94-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
11): 3,3'-DIMETHOXYBENZIDINE (CAS No.: 119-90-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
12): 3,3'-DIMETHYLBENZIDINE (CAS No.: 119-93-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
13): 3,3'-DIMETHYL-4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 838-88-0)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
14): P-CRESIDINE (2-METHOXY-5-METHYLANILINE) (CAS No.: 120-71-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
15): 4,4'-METHYLENE-BIS- (2-CHLOROANILINE) (CAS No.: 101-14-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
16): 4,4'-OXYDIANILINE (CAS No.: 101-80-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
17): 4,4'-THIODIANILINE (CAS No.: 139-65-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
18): O-TOLUIDINE (CAS No.: 95-53-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
19): 2,4-TOLUYLENEDIAMINE (CAS No.: 95-80-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
20): 2,4,5-TRIMETHYLANILINE (CAS No.: 137-17-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
21): O-ANISIDINE (CAS No.: 90-04-0)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-

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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
22): P-AMINOAZOBENZENE (CAS No.: 60-09-3)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
23): 2,4-XYLIDINE (CAS No.: 95-68-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
24): 2,6-XYLIDINE (CAS No.: 87-62-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
CFC's (Chlorofluorocarbons)					
Group I					
Chlorofluorocarbon-11 (CAS No.: 75-69-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-12 (CAS No.: 75-71-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-113 (CAS No.: 76-13-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-114 (CAS No.: 76-14-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-115 (CAS No.: 76-15-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Group III					
Chlorofluorocarbon-13 (CAS No.: 75-72-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-111 (CAS No.: 354-56-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-112 (CAS No.: 76-12-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-211 (CAS No.: 422-78-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
Chlorofluorocarbon-212 (CAS No.: 3182-26-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-213 (CAS No.: 2354-06-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-214 (CAS No.: 29255-31-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-215 (CAS No.: 4259-43-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-216 (CAS No.: 661-97-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-217 (CAS No.: 422-86-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
CHCs (Chlorinate hydrocarbon)					
1,1,1,2-Tetrachloroethane (CAS No.: 630-20-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1,1-Trichloroethane (CAS No.: 71-55-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1,2,2-Tetrachloroethane (CAS No.: 79-34-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1,2-Trichloroethane (CAS No.: 79-00-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1-Dichloroethane (CAS No.: 75-34-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1-Dichloroethene (CAS No.: 75-35-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
1,1-Dichloropropene (CAS No.: 563-58-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,2,3-Trichloropropane (CAS No.: 96-18-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,2-Dichloroethane (CAS No.: 107-06-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,2-Dichloropropane (CAS No.: 78-87-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,3-Dichloropropane (CAS No.: 142-28-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
2,2-Dichloropropane (CAS No.: 594-20-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Carbon tetrachloride (CAS No.: 56-23-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chloroethane (CAS No.: 75-00-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chloroform (CAS No.: 67-66-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chloromethane (CAS No.: 74-87-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
cis-1,2-Dichloroethene (CAS No.: 156-59-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
cis-1,3-Dichloropropene (CAS No.: 10061-01-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
Hexachlorobutadiene (CAS No.: 87-68-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Methylene Chloride (CAS No.: 75-09-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Tetrachloroethene (CAS No.: 127-18-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
trans-1,2-Dichloroethene (CAS No.: 156-60-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
trans-1,3-Dichloropropene (CAS No.: 10061-02-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Trichloroethylene (CAS No.: 79-01-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFCs (Hydrochlorofluorocarbons)					
HCFC-21 (CAS No.: 75-43-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-22 (CAS No.: 75-45-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-31 (CAS No.: 593-70-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-121 (CAS No.: 354-14-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-122 (CAS No.: 354-21-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
HCFC-123 (CAS No.: 306-83-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-124 (CAS No.: 2837-89-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-131 (CAS No.: 359-28-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-132b (CAS No.: 1649-08-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-133a (CAS No.: 75-88-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-141b (CAS No.: 1717-00-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-142b (CAS No.: 75-68-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-221 (CAS No.: 422-26-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-222 (CAS No.: 422-49-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-223 (CAS No.: 422-52-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-224 (CAS No.: 422-54-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-225ca (CAS No.: 422-56-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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Test Report

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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
HCFC-225cb (CAS No.: 507-55-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-226 (CAS No.: 431-87-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-231 (CAS No.: 421-94-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-232 (CAS No.: 460-89-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-233 (CAS No.: 7125-84-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-234 (CAS No.: 425-94-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-235 (CAS No.: 460-92-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-241 (CAS No.: 666-27-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-242 (CAS No.: 460-63-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-243 (CAS No.: 460-69-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-244	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-251 (CAS No.: 421-41-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
HCFC-252 (CAS No.: 819-00-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-253 (CAS No.: 460-35-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-261 (CAS No.: 420-97-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-262 (CAS No.: 421-02-03)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-271 (CAS No.: 430-55-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	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. Negative = Undetectable / Positive = Detectable
7. Asbestos : Negative = "< 1.0 %", Positive = "> 1.0 %"

PFOS Reference Information : POPs - (EU) 757/2010

Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1µg/m².

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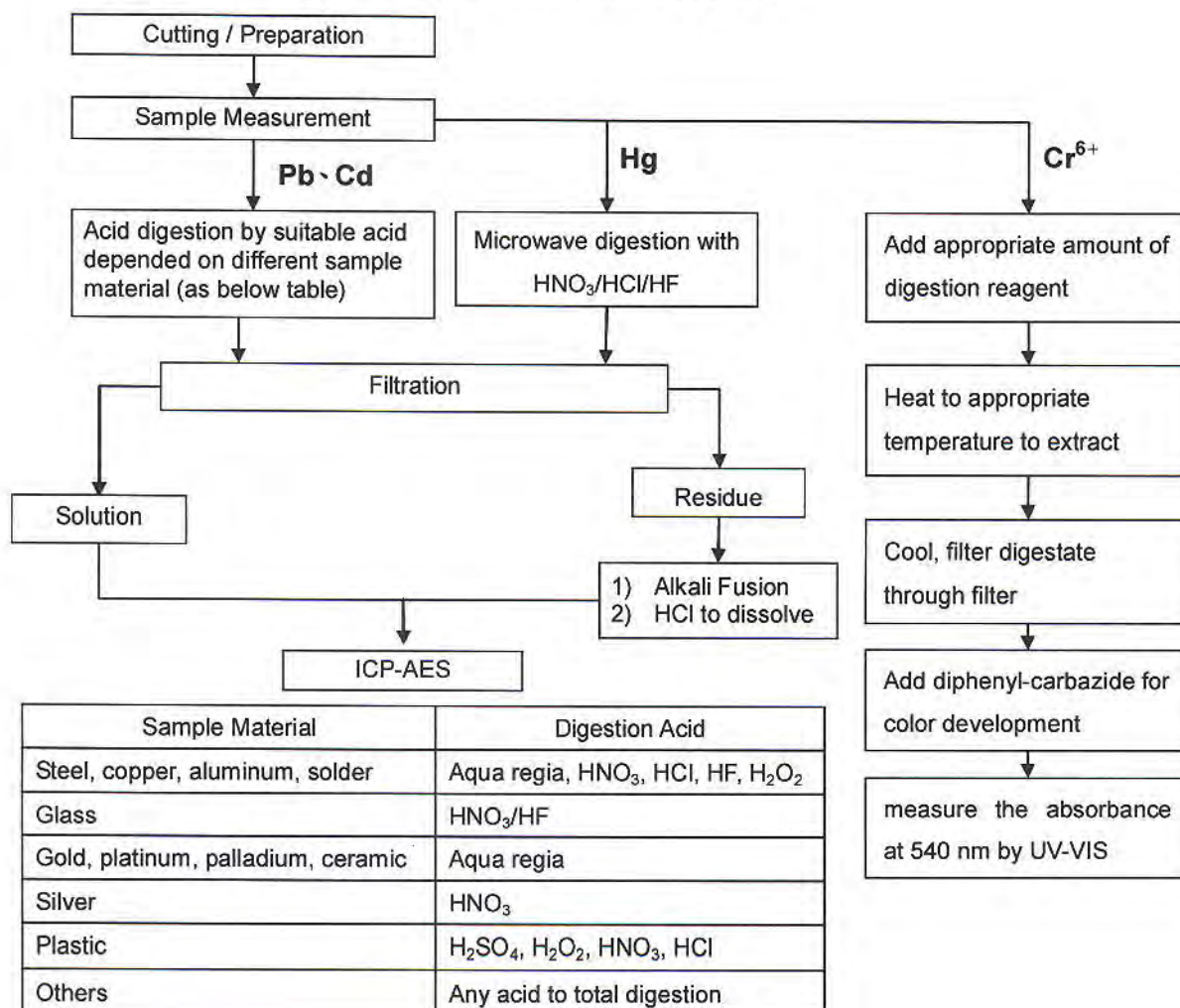
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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



- 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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CERAMTEC GMBH

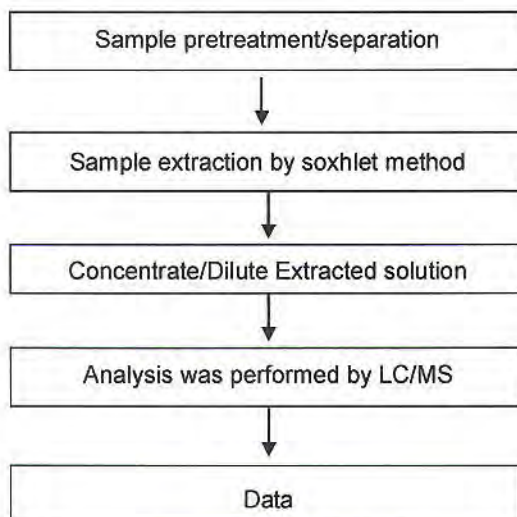
MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Analytical flow chart of Soxhlet extraction (LC/MS) procedure

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

[Test Items: PFOS/PFOA 、 Benzotriazole]



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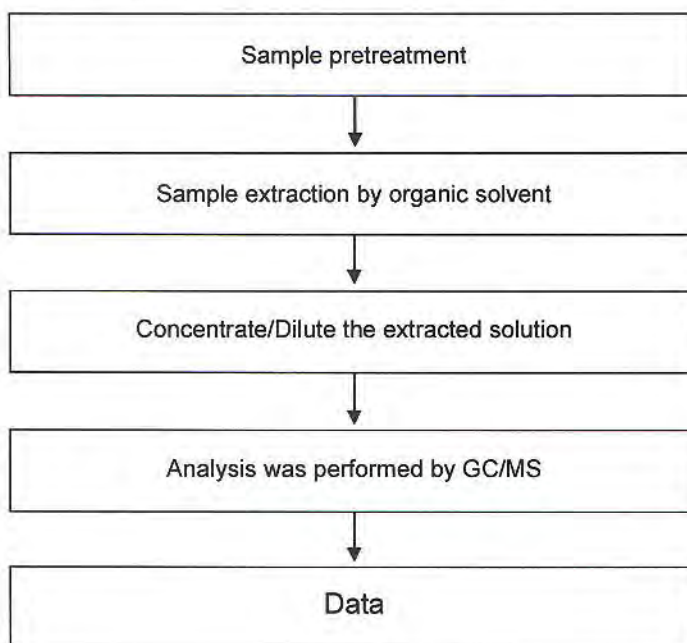
CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Chlorinated Flame retardant analytical flow chart

- 1) Name of the person who made measurement: Barry Tseng
 - 2) Name of the person in charge of measurement: Troy Chang
- Reference method: US EPA 8270D, US EPA 3540
 - Test Items: PCBs, PCNs, PCTs, Mirex, CP, MCPP



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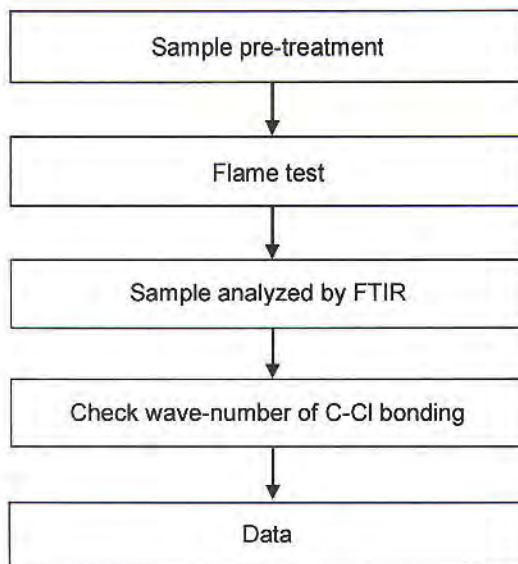
CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Analysis flow chart for determination of PVC in material

- Name of the person who made measurement: Ginny Chen
- Name of the person in charge of measurement: Troy Chang



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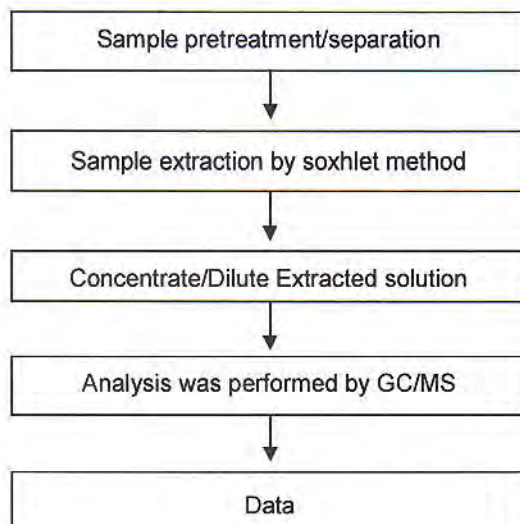
MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Analytical flow chart of Soxhlet extraction (GC/MS) procedure

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

【 Test Items: Phthalate 、 Benzotriazole 、 HBCDD 、 NP 、 DBBT 、
Organic phosphorus compounds 】



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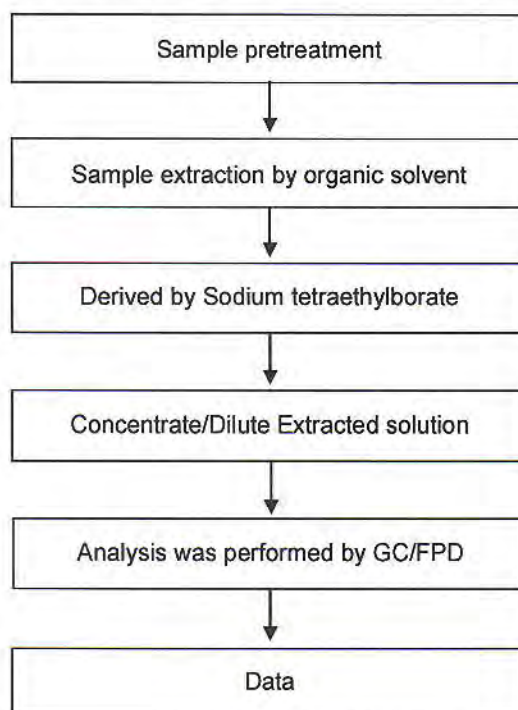
CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Analytical flow chart of Organic-Tin content

- Name of the person who made measurement: Ginny Chen
- Name of the person in charge of measurement: Troy Chang



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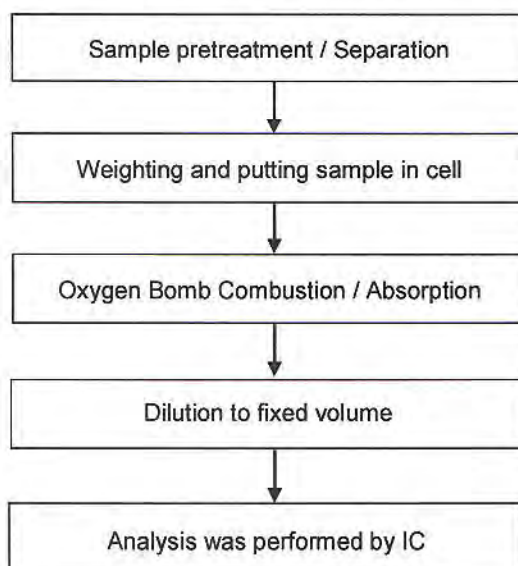
CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



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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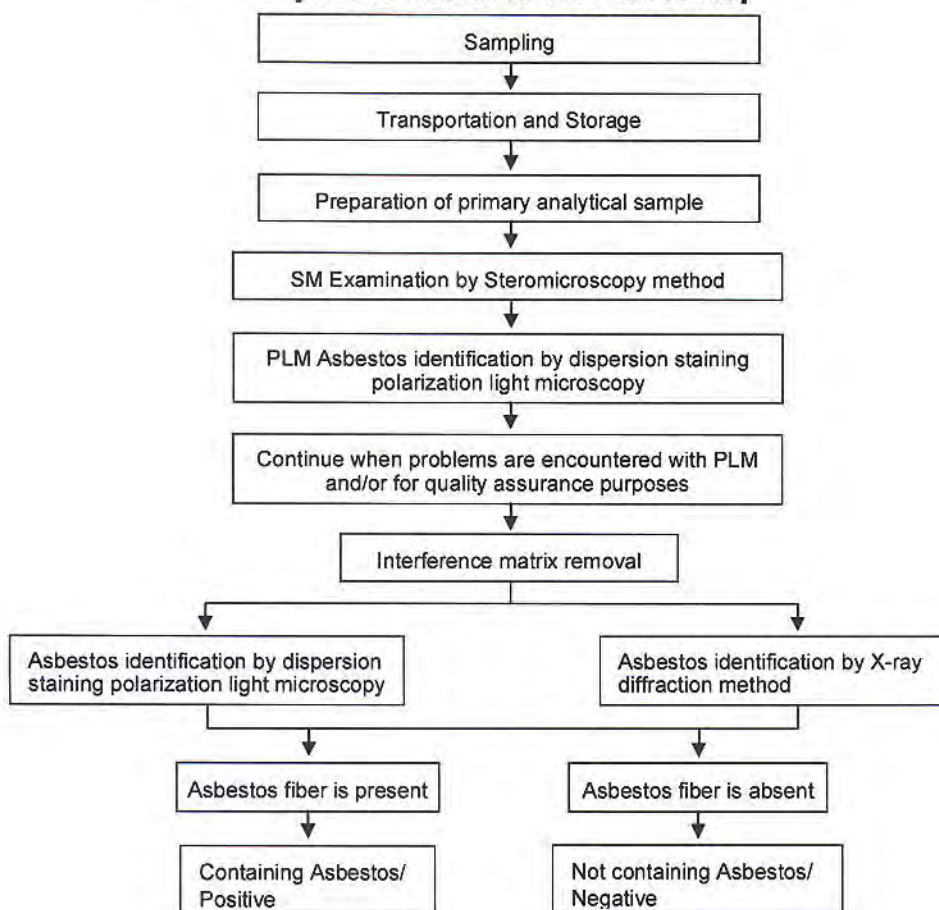
CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Analysis flow chart for determination of Asbestos

- 1) Name of the person who made measurement: Victor Kao
 - 2) Name of the person in charge of measurement: Wendy Wei
- [Reference method: EPA 600/R-93/116]**



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CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY

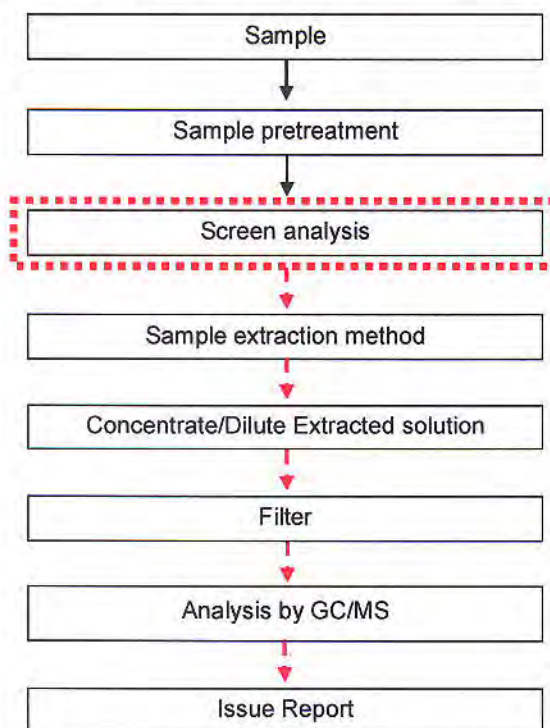


Analytical flow chart

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

[Test Items: PBB/PBDE, TBBP-A-bis]

First testing process → Optional screen process Confirmation process - - - - -



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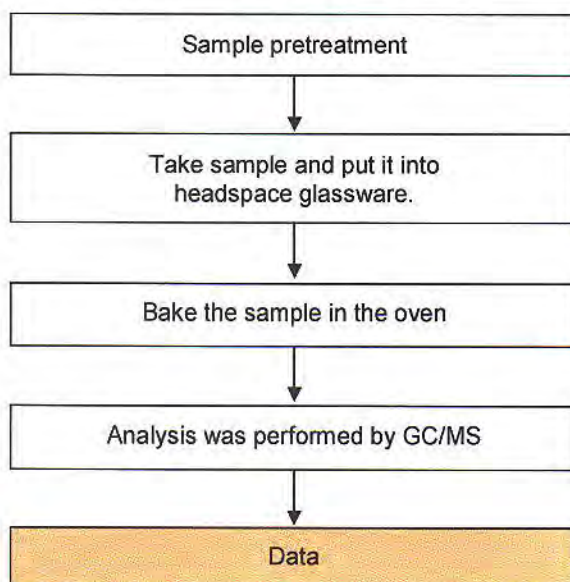
CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



Analytical flow chart of volatile organic compounds (VOCs)

- Name of the person who made measurement : Chun Wu
 - Name of the person in charge of measurement : Shinjyh Chen
- 【Reference method : US EPA 5021】



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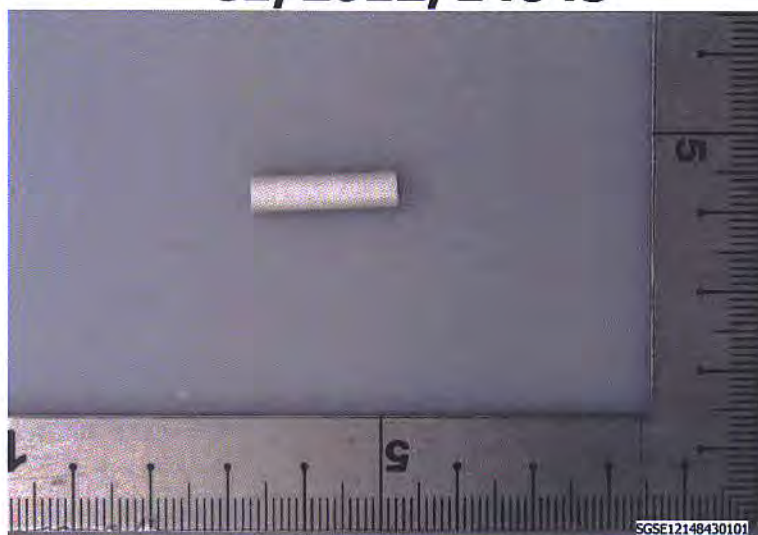
CERAMTEC GMBH

MULTIFUNCTIONAL CERAMICS LUITPOLDSTRASSE 15 D-91207 LAUF, GERMANY



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

CE/2012/14843



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