ICP Test Report Certification Packet

Company name: Littelfuse, Inc.

Product Series: 5x20 Fuse / 216-HF

Product #: Refer to the final page

Issue Date: May 03, 2013

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

Issued by: JENNY DINGLASAN

<Global EHS Specialist >

(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 identifed 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	910-555 (previously 910-553)	Cap (base & plating)	3-6
2	910-556	Cap (base & plating)	7-13
3	909-455	Ceramic Body	14-25
4	082xxx	Element – Ag Plated Cu	26-30
5	692539-002	Solder	31-35
6	934-078 , C030210	Overcap – Cap Base & Plating	36-39
7	934-078 , C030210	Overcap – Wire Base & Plating	36-39
8	091251	Filler	40-46
9	425633	Black Ink	47-59
10	425641	Violet Ink	60-72
11	425631	Orange Ink	73-85
12	425632	Red Ink	86-98
13	425634	Deep yellow Ink	99-111
14	425635	Blue Ink	112-124
15	425636	Brown Ink	125-138
16	425637	Green Ink	139-151
17	425639	Grey (Silver) Ink	152-164
18	N/A	Table of Parts for 216-HF	165

Table 2. Part Numbers for 216P-HF

AOV 安姆特检测 AOV TESTING

TEST REPORT

NO.: A002R121008024-1R02 Date: Oct.10, 2012

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

ORIGINAL

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

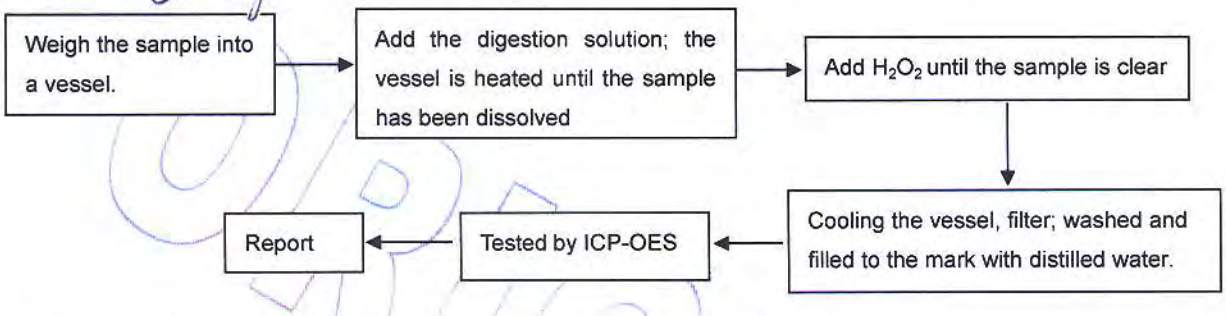
Approved by: Mickey
Yuan Qi, Mickey
Lab Manager

TEST REPORT

Test Flow:

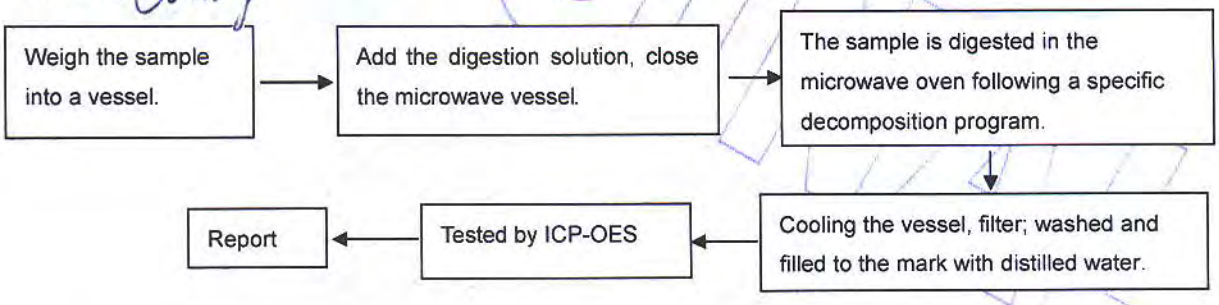
1. To Determine Lead, Cadmium Content: (Metal substrate)

Tested by: Condy



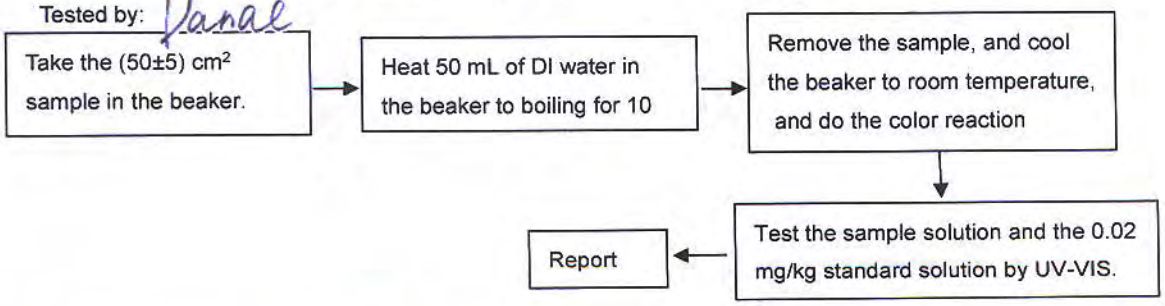
2. To Determine Mercury Content: (Metal substrate)

Tested by: Condy



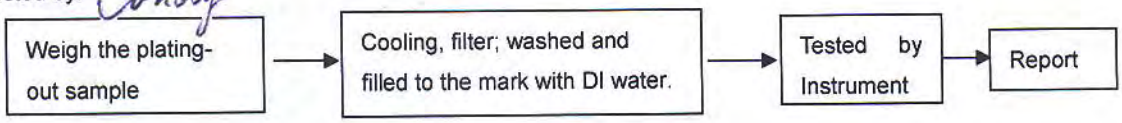
3. To Determine Hexavalent Chromium Content (boiling- water- extraction): (Metal substrate)

Tested by: Danal



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

Tested by: Condy

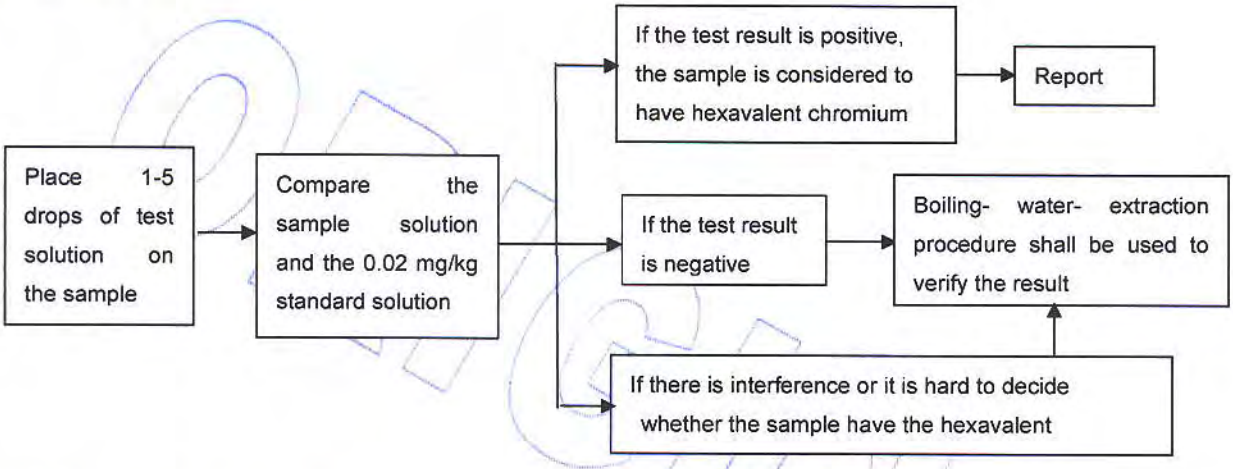


TEST REPORT

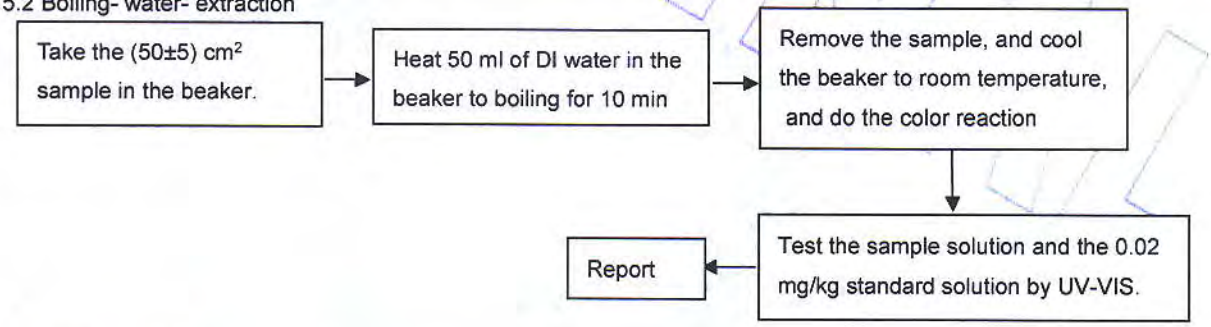
5. To Determine Hexavalent Chromium Content in colorless and colored chromate coating on metals: (Plating)

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

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);

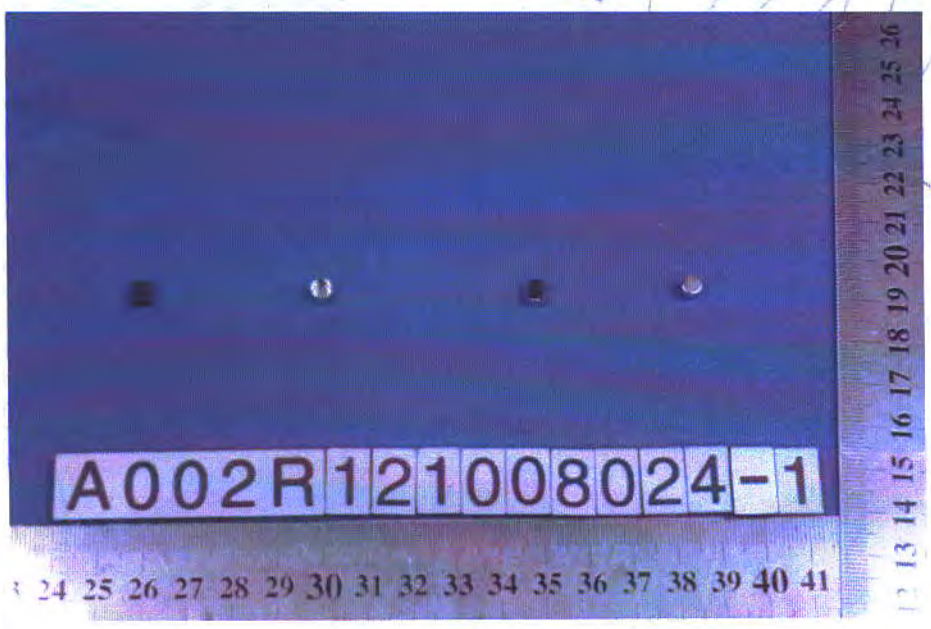
Uncertain= can not verify whether the sample have Hexavalent Chromium by spot-test.

（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

CTI 华测检测 CENTRE TESTING INTERNATIONAL

Test Report

Report No. RLSZE001492100002

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 Vangan He

Approved by Danny Liu Date Nov. 19, 2012

Technical Manager

No. 11033098

Test Report

Report No. RLSZE001492100002

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

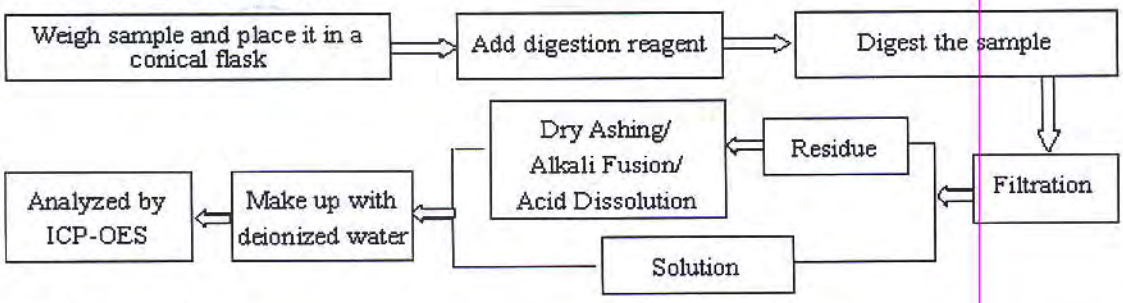
Tested Sample/Part Description Metal base

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 50cm^2 sample surface area used.

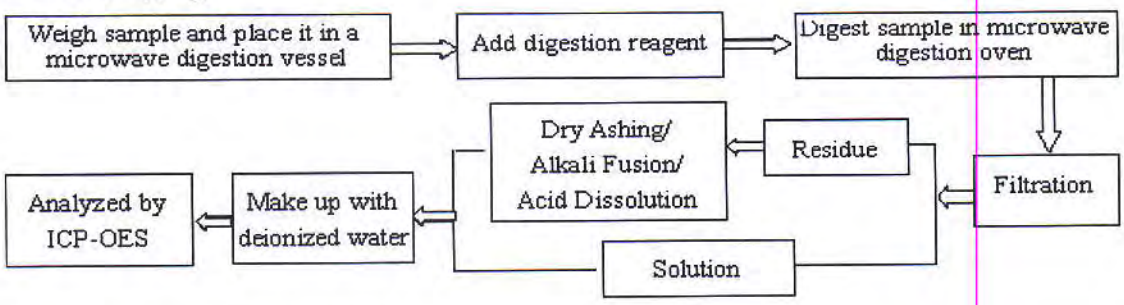
Test Report

Test Process

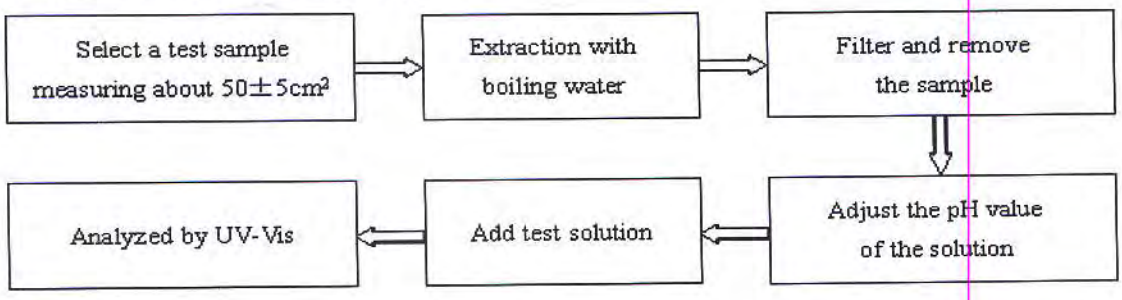
1. Lead(Pb), Cadmium(Cd)



2. Mercury(Hg)



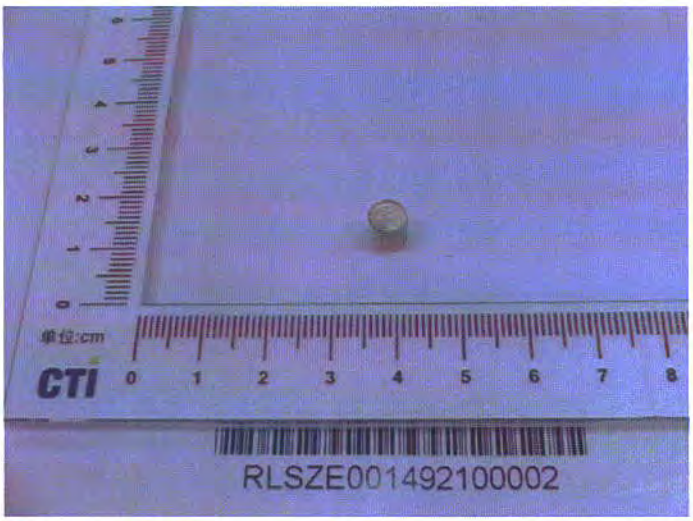
3. Hexavalent Chromium(Cr(VI))



Test Report

Report No. RLSZE001492100002

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.

CTI 华测检测 CENTRE TESTING INTERNATIONAL

Test Report

Report No. RLSZE001492100001

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 Vangan He

Approved by Danny Liu, Technical Manager Date Nov. 19, 2012

CENTRE TESTING INTERNATIONAL CTI SZ03

No. 11033098

Test Report

Report No. RLSZE001492100001

Test Result(s)

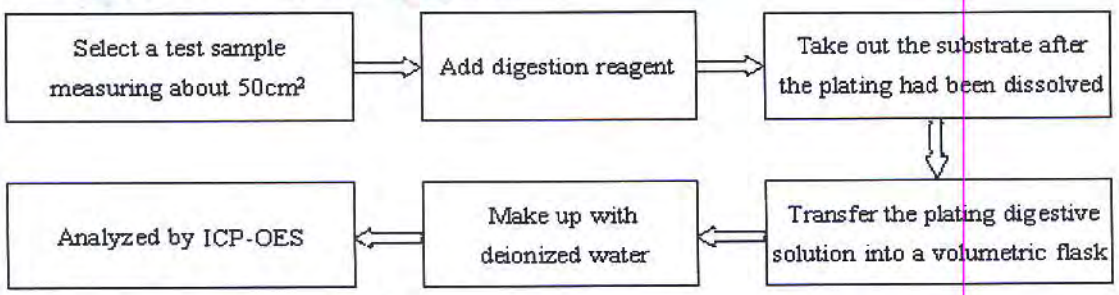
Tested Item(s)	Result
Lead(Pb)	N.D.
Cadmium (Cd)	N.D.
Mercury(Hg)	N.D.
Hexavalent Chromium(Cr(VI))	Negative

Tested Sample/Part Description Silvery plating

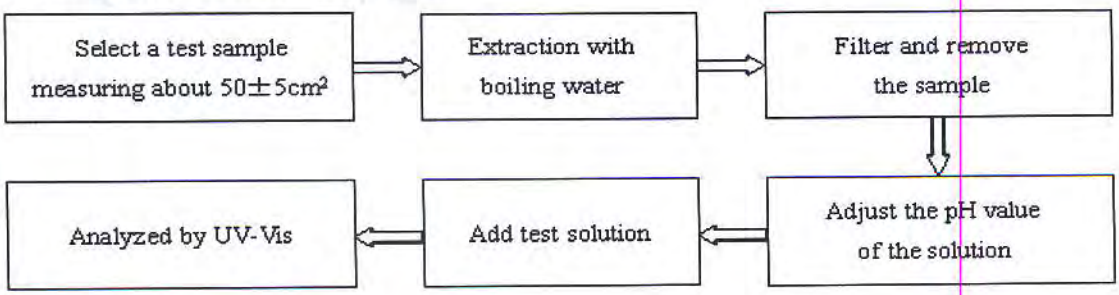
Note: **The washed plating had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million
-Negative = Absence of Cr(VI) , the detected Cr(VI) concentration in the boiling water extraction solution is less than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

Test Process

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



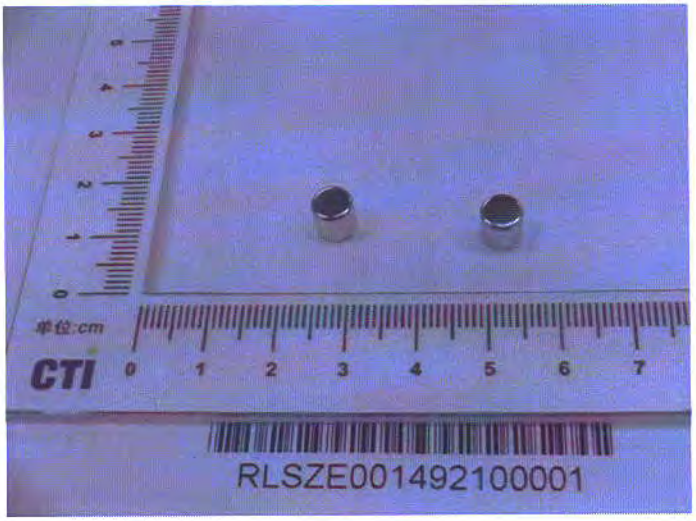
2. Hexavalent Chromium(Cr(VI))



Test Report

Report No. RLSZE001492100001

Photo(s) of the sample(s)



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Signature valid
For Question
Please C[illegible] with SGS
www.tw.sgs.com

測試報告
Test Report

號碼(No.) : CE/2013/37346 日期(Date) : 2013/04/03 頁數(Page) : 1 of 12

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.)

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as):

樣品名稱(Sample Description)	:	CERAMIC BASE (陶瓷體)
樣品型號(Style/Item No.)	:	YJ50/YJM
批號(Lot No.)	:	40
收件日期(Sample Receiving Date)	:	2013/03/27
測試期間(Testing Period)	:	2013/03/27 TO 2013/04/03

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.)

SGS TAIWAN LTD
SGS
Troy Chang, Manager-Tech
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

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測試報告
Test Report

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.)
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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) No.1	法規限值 (Limit)
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	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	20	1000
汞 / Mercury (Hg)	mg/kg	參考IEC 62321: 2008方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.	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
六溴環十二烷及所有主要被辨別出的異構物 / Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β- HBCDD, γ- HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	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.	-

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測試報告
Test Report

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)
鄰苯二甲酸甲苯基丁酯 / BBP (Benzyl butyl phthalate) (CAS No.: 85-68-7)	%	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.	-
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.	-
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	參考US EPA 3550C: 2007方法, 以液相層析/質譜儀檢測. / With reference to US EPA 3550C: 2007, Analysis was performed by LC/MS.	10	n.d.	-
全氟辛酸 (銨) / PFOA (CAS No.: 335-67-1)	mg/kg	參考US EPA 3550C: 2007方法, 以液相層析/質譜儀檢測. / With reference to US EPA 3550C: 2007, Analysis was performed by LC/MS.	10	n.d.	-

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測試報告
Test Report

永昌電瓷股份有限公司 / YUEN JINN ELECTRICAL CERAMIC CO., LTD.
(永昌電瓷(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/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.	-

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測極限值 (MDL)	結果 (Result) No.1	法規限值 (Limit)
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.: 14362-44-8)	mg/kg		50	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)

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/m^2。

(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/m^2.)

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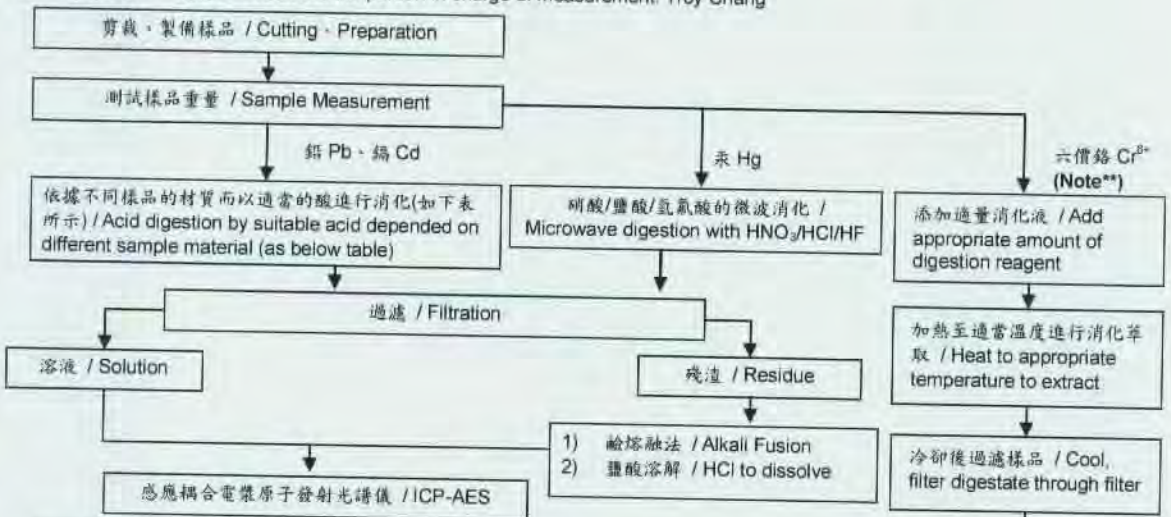
1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr^{6+} test method excluded)
2) 測試人員：楊登佳 / Name of the person who made measurement: Climbgreat Yang
3) 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



樣品材質 / Sample Material	消化酸液種類 / Digestion Acid
鋼, 銅, 鋁, 焊錫 / Steel, copper, aluminum, solder	王水, 硝酸, 鹽酸, 氫氟酸, 雙氧水 / Aqua regia, HNO_3, HCl, HF, H_2O_2
玻璃 / Glass	硝酸,氫氟酸 / HNO_3/HF
金, 鉑, 鈀, 陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO_3
塑膠 / Plastic	硫酸, 雙氧水, 硝酸, 鹽酸 / H_2SO_4, H_2O_2, HNO_3, HCl
其他 / Others	加入適當的試劑至完全溶解 / Added appropriate reagent to total digestion

Note** : (1) 針對非金屬材料加入鹼性消化液，加熱至 90~95℃萃取. / For non-metallic material, add alkaline digestion reagent and heat to 90~95℃
(2) 針對金屬材料加入純水，加熱至沸騰萃取. / For metallic material, add pure water and heat to boiling.

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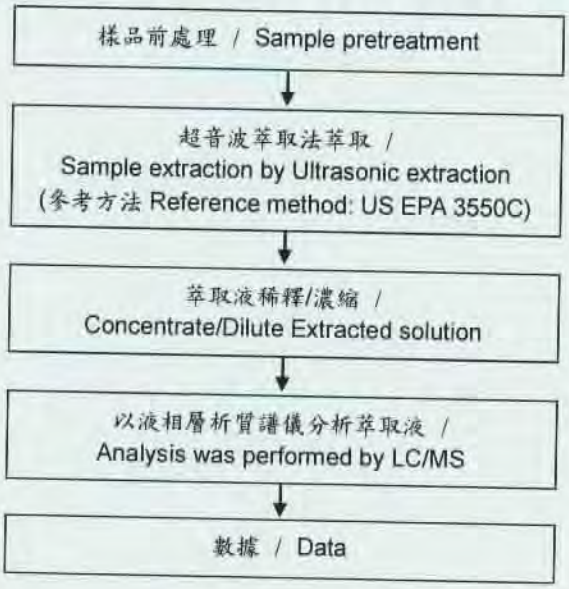
全氟辛酸(鹽)/全氟辛烷磺酸分析流程圖 / PFOA/PFOS analytical flow chart

- 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



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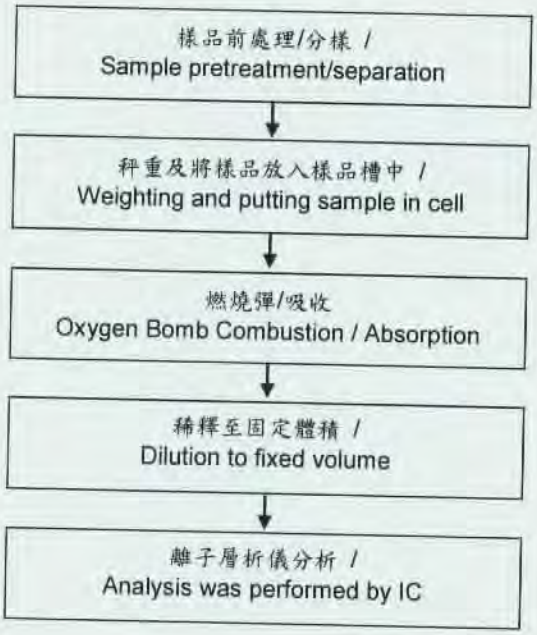
鹵素分析流程圖 / Analytical flow chart of halogen content

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



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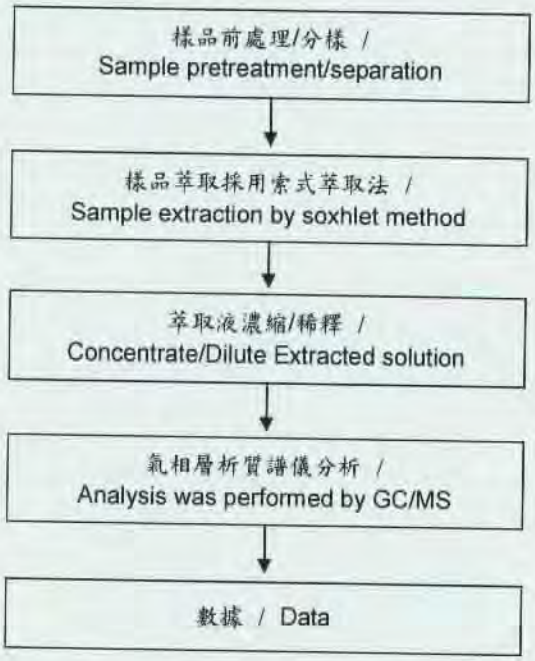
可塑劑分析流程圖 / Analytical flow chart of phthalate content

- 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



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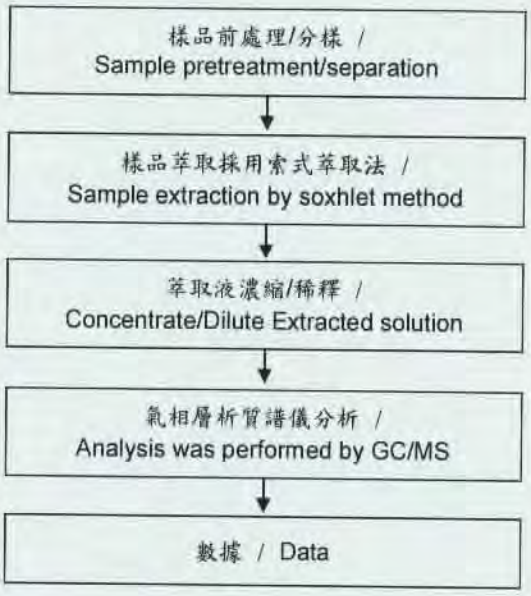
六溴環十二烷分析流程圖 / HBCDD analytical flow chart

- 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



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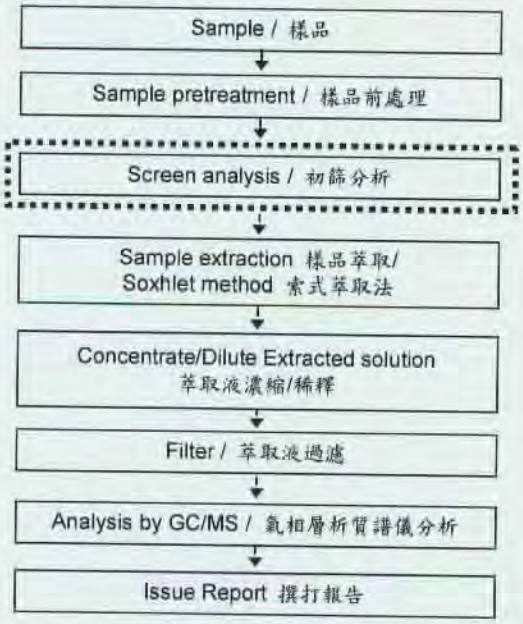
多溴聯苯/多溴聯苯醚分析流程圖 / PBB/PBDE analytical FLOW CHART

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

初次測試程序 / First testing process ——→
選擇性篩檢程序 / Optional screen process ▪▪▪▪▪▪▪▪→
確認程序 / Confirmation process — · — ·→



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

CE/2013/37346

** 報告結尾 (End of Report) **

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Test Report Number: SHAH0036227401

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

Date: JAN 18, 2013

Sample Description:

Two(2) pieces of submitted samples said to be :

(1) Mixed all kinds of metal substrates.

(2) Mixed all kinds of plating layers.

Item Name : Silver Plated & Pure Silver Wires.

Item No. : (B-1) 101.014 -. ----
– silver plated copper wire – Cu, Ag--%

(B-2) 101.0131.----
– pure silver wire – Ag 1000

(B-3) 101.0123.0---
– silver plated purest nickel wire – Ni99.98%, Ag1%

(B-4) 101.0182.0---
– silver-copper alloy plated copper plated iron nickel alloy wire
– ElconD, AgCu5%

(B-5) 101.0120.0---
– silver plated constantan wire – CuNi44, Ag5%

(B-6) 101.0151.0---
– silver plated copper - nickel 44 alloy wire
– CuNi44, Ag10%

(B-7) 1050--31.--------
– pure silver strips – Ag 1000 pure

Country Of Origin : Germany.

****

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

Intertek Testing Services Ltd., Shanghai 上海天祥质量技术服务有限公司 检测报告专用章

Intertek Testing Services Ltd., Shanghai
Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233
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Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740
www.intertek.com www.intertek.com.cn

Test Report Number： SHAH0036227401

Tests Conducted

(A) Test result of RoHS Directive：

Testing item	**Result**
	(1)
Cadmium (Cd) content (mg/kg)	ND
Lead (Pb) content (mg/kg)	ND
Mercury (Hg) content (mg/kg)	ND
Chromium (VI)(Cr^{6+}) result (by boiling water extraction on metal) (mg/kg with $50cm^2$)	ND

Testing item	**Result**
	(2)
Cadmium (Cd) content (mg/kg) /Plating	ND
Lead (Pb) content (mg/kg) /Plating	ND
Mercury (Hg) content (mg/kg) /Plating	ND
Chromium (VI)(Cr^{6+}) result (by boiling water extraction on metal) (mg/kg with $50cm^2$) /Plating	ND

Remark：mg/kg with $50cm^2$ = milligram per kilogram with 50 square centimeter
ND = not detected

(B) RoHS Requirement：

Restricted substances	**Limits**
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr^{6+})	0.1% (1000 mg/kg)

The above limits were quoted from RoHS Directive 2011/65/EU for homogeneous material.

(C) Test method：

Testing item	**Testing method**	**Reporting limit**
Cadmium (Cd) content	With reference to IEC 62321 Edition 1.0: 2008, by acid digestion until the tested sample was totally dissolved, and determined by ICP-OES.	2 mg/kg
Lead (Pb) content	With reference to IEC 62321 Edition 1.0: 2008, by acid digestion until the tested sample was totally dissolved, and determined by ICP-OES.	2 mg/kg
Mercury (Hg) content	With reference to IEC 62321 Edition 1.0: 2008, by acid digestion until the tested sample was totally dissolved, and determined by ICP-OES.	2 mg/kg
Chromium (VI) (Cr^{6+}) content (for metal)	With reference to IEC 62321 Edition 1.0: 2008, by boiling water extraction and determined by UV-VIS Spectrophotometer.	0.02mg/kg with $50cm^2$ (in testing solution)

Date sample received： Jan.14, 2013
Testing period： Jan.14, 2013 To Jan.17, 2013

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To Be Continued

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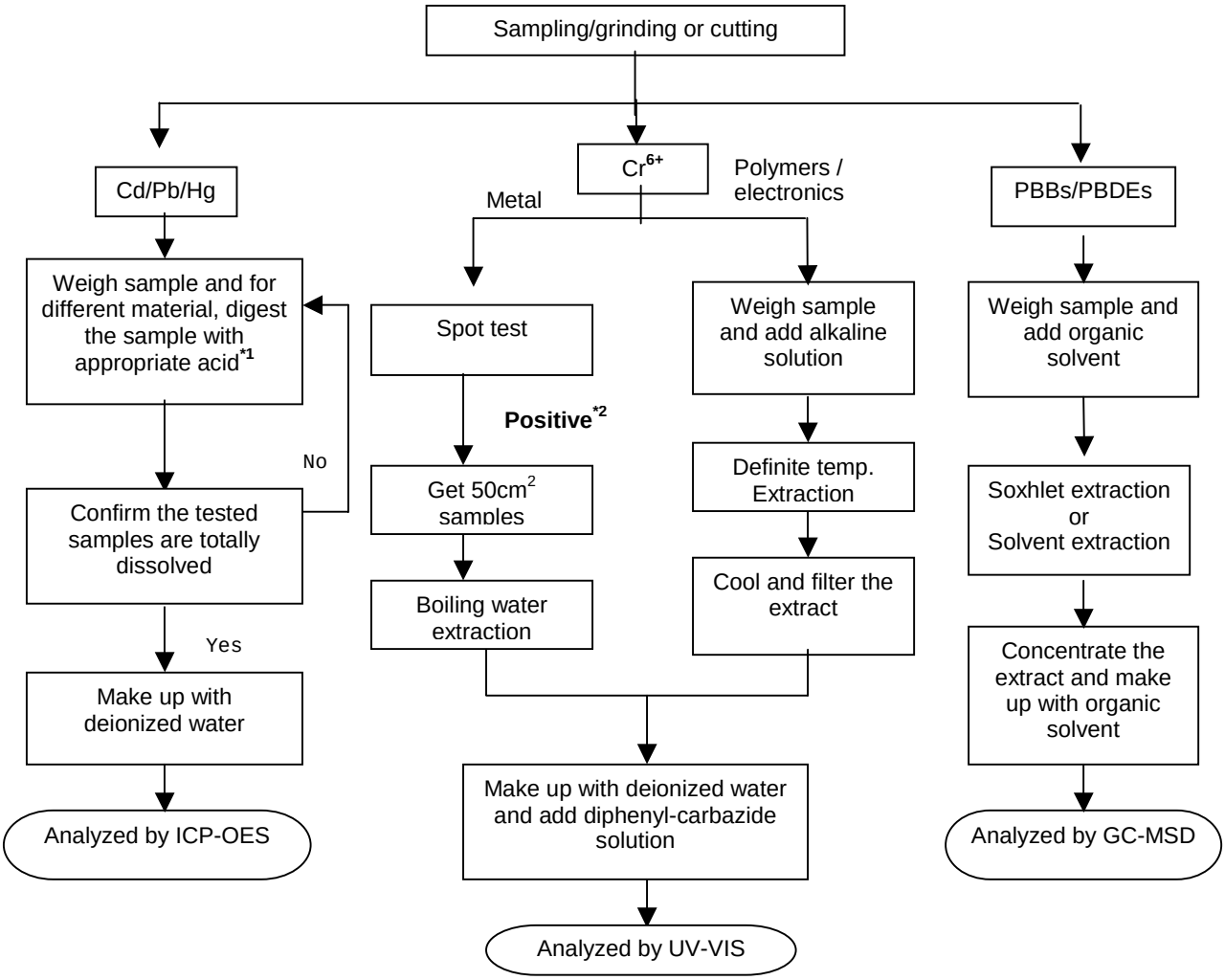
Tests Conducted

(D) 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_2O_2,H_3BO_3
Metals	HNO_3,HCL,HF
Electronics	HNO_3,HCL,H_2O_2,HBF_4

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

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To Be Continued

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Tests Conducted

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To Be Continued

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Test Report Number： SHAH0036227401

Tests Conducted

****

End Of Report

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Test Report

No. SHAEC1216714750 Date: 25 Sep 2012

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 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 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 cm^2 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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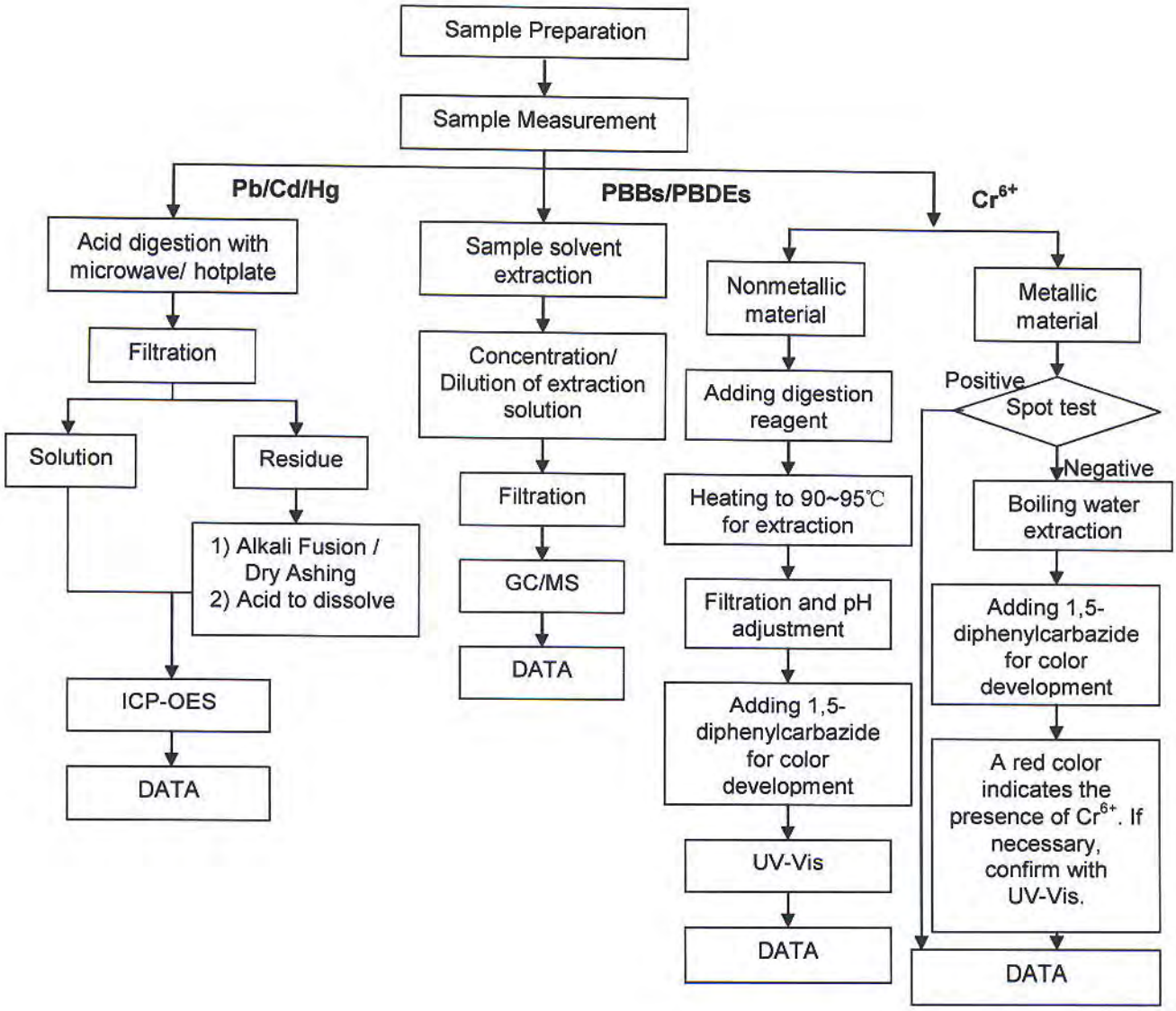
ATTACHMENTS

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. (Cr^{6+} and PBBs/PBDEs test method excluded)



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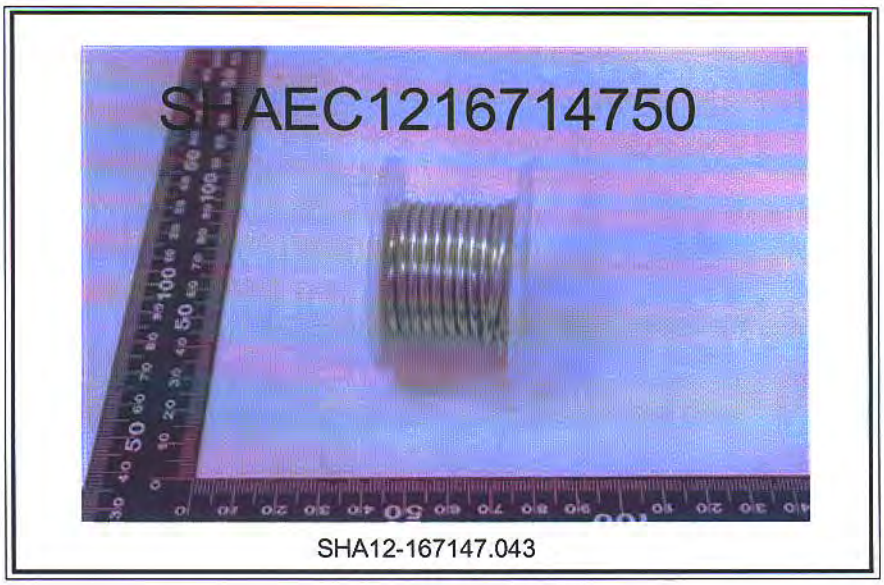
Sample photo:



SHA12-167147.043

SGS authenticate the photo on original report only

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AOV® 安姆特检测 AOV TESTING

TEST REPORT

NO.: A002R121008024-2R02 Date: Oct.10, 2012

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

ORIGINAL

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

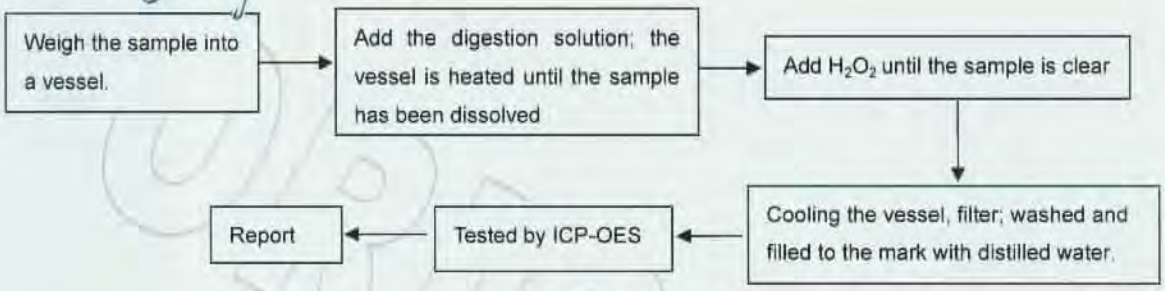
Project Leader: Maggie	Reviewed by: Weikin	Approved by: Mickey
Li Tingting, Maggie	Wang Wexin, Weikin	Yuan Qi, Mickey
Chemical Test Director	Technical Director	Lab Manager

TEST REPORT

Test Flow:

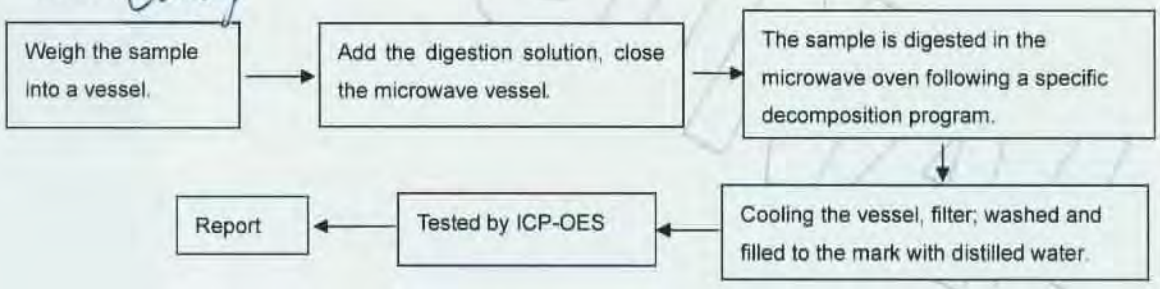
1. To Determine Lead, Cadmium Content: (Metal substrate)

Tested by: Condy



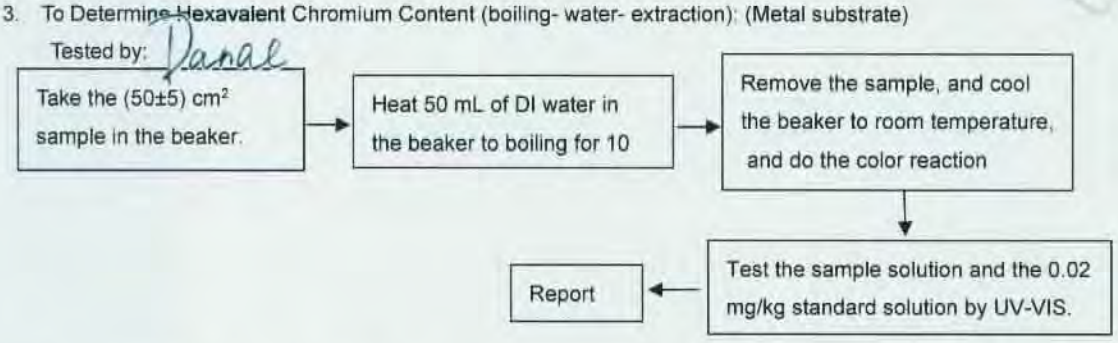
2. To Determine Mercury Content: (Metal substrate)

Tested by: Condy



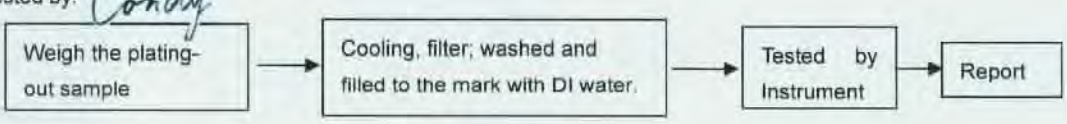
3. To Determine Hexavalent Chromium Content (boiling- water- extraction): (Metal substrate)

Tested by: Danal



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

Tested by: Condy

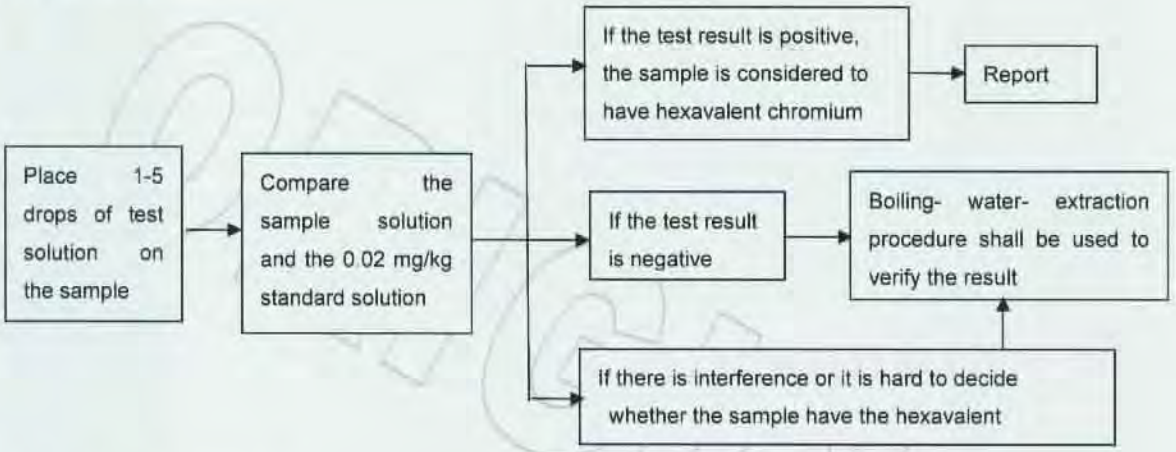


TEST REPORT

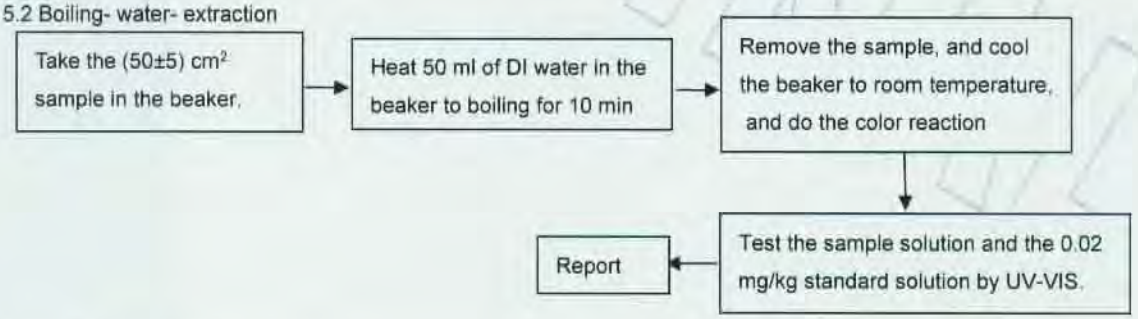
5. To Determine Hexavalent Chromium Content in colorless and colored chromate coating on metals: (Plating)

Tested by: Danal

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

Note:

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

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

-mg/kg=ppm

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

-MQL=Method Quantitation Limit

-Negative=Absence of Cr (Ⅵ);

-Positive=Presence of Cr (Ⅵ);

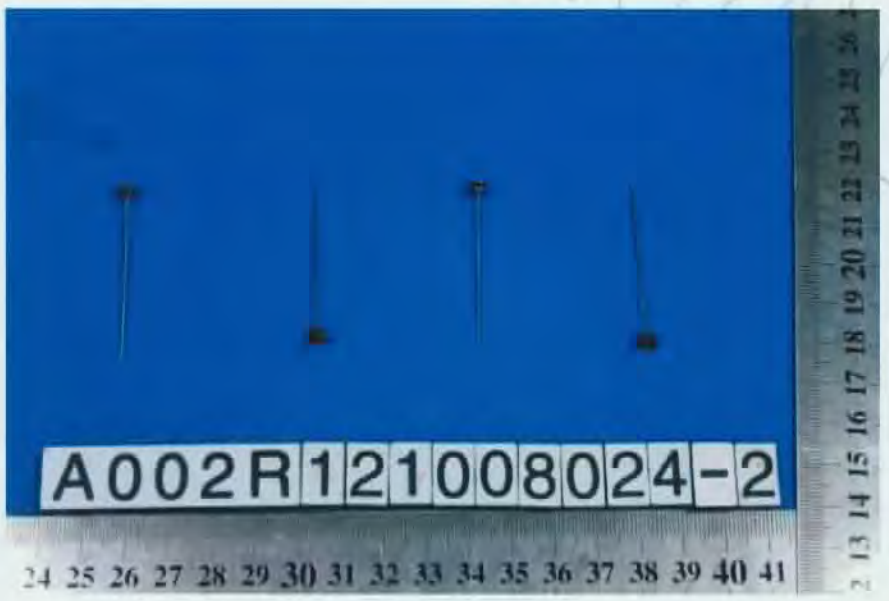
Uncertain= can not verify whether the sample have Hexavalent Chromium by spot-test.

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

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

-Photo is included

Photograph of Sample



Lead wire copper shell

End of Report

Test Report Number : TWNC00282887

Applicant: Littelfuse Philippines Inc. Date : Oct 31, 2012
LIMA Technology Center, Lipa City,
Malvar, Batangas

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

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

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Number : TWNC00282887

Test Conducted

(Ⅱ) RoHS Limits:

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 Ehters (PBDEs)	0.1% (1000ppm)

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.

(Ⅲ) Test Method:

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

(Ⅲ) Test Method:

Test Item	Test Method	Reporting Limit
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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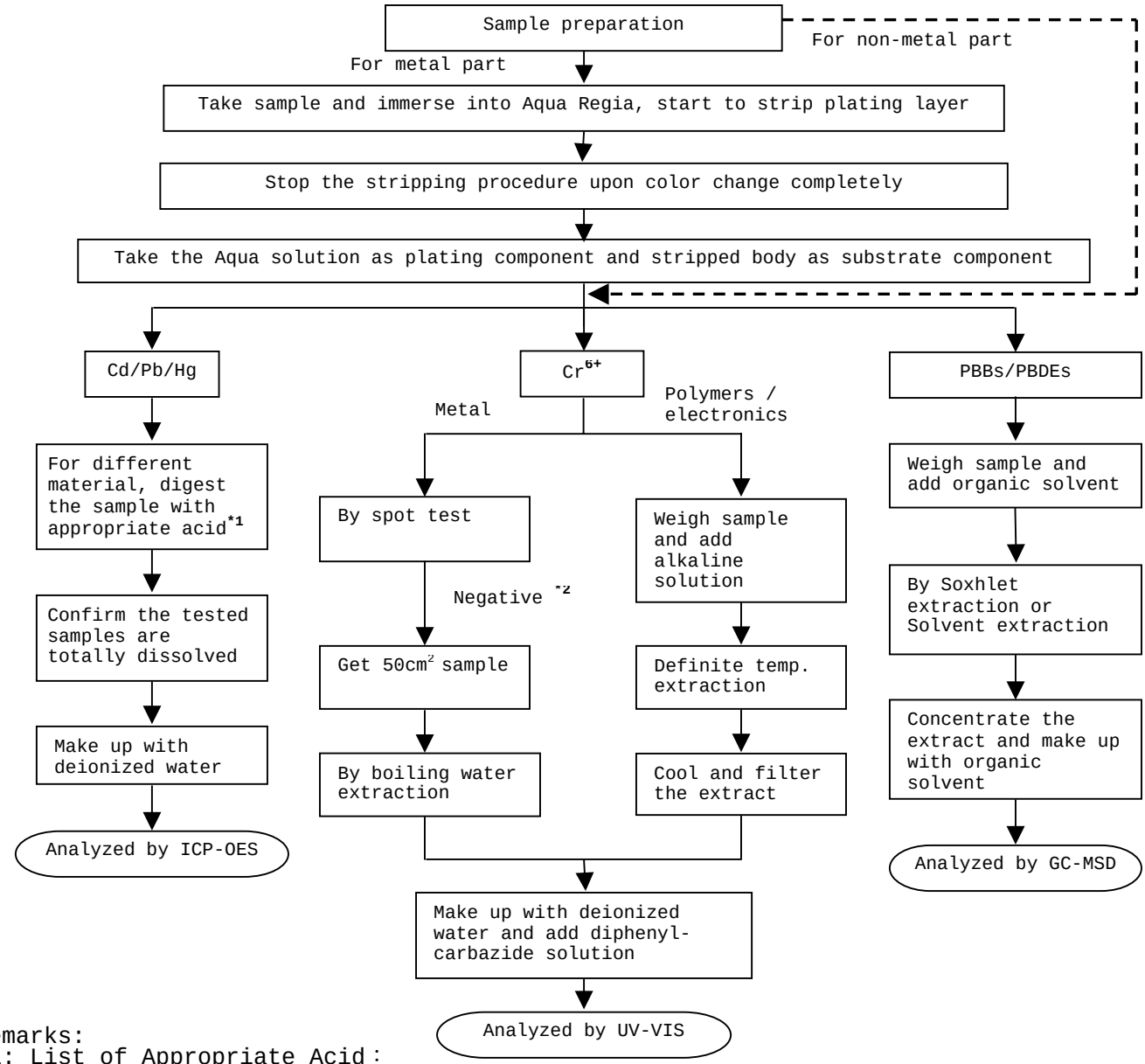
Number : TWNC00282887

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_2O_2, H_3BO_3
Metals	HNO_3, HCl, HF
Electronics	HNO_3, HCl, H_2O_2, HBF_4

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

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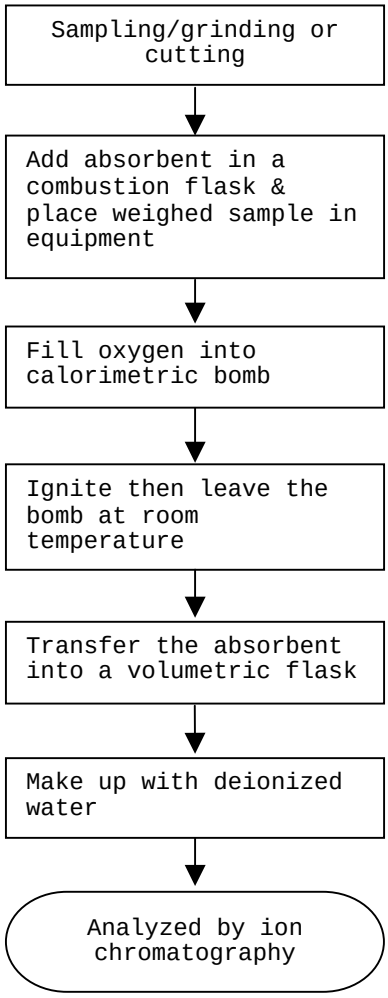
Tel: (+886-2) 6602-2888 · 2797-8885 Fax: (+886-2) 6602-2410

Test Conducted

(Ⅳ) Measurement Flowchart:

Test for Halogen Content

Reference Standard：EN 14582



End of Report

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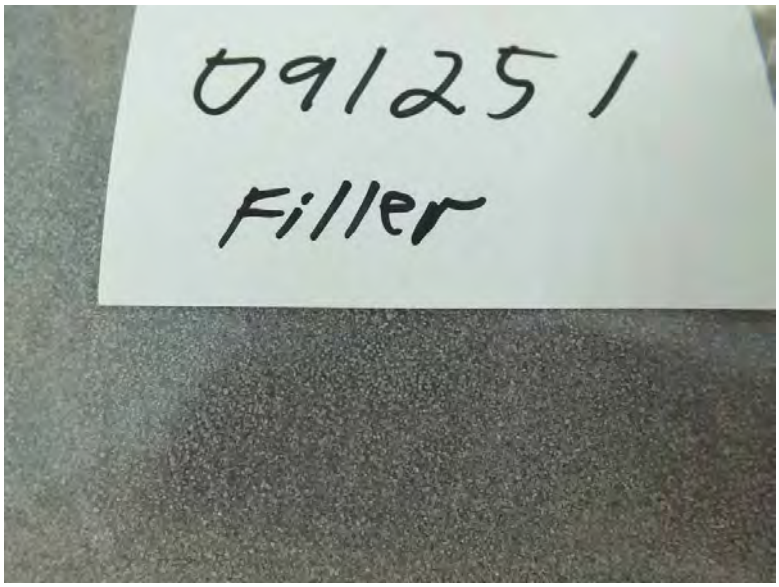
Number : TWNC00282887

Test Conducted

Photo



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Test Report Number: SHAH00369073

Applicant: LITTELFUSE,INC.
800 E. NORTHWEST HWY
Attn: A.DIVIETRO/D.UNTIEDT

Date: MAR 15, 2013

Sample Description:
One(1) submitted sample said to be **Black liquid.**
Item Name : Ink-black.
Part No. : 425633.

****

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

Intertek Testing Services Ltd., Shanghai 上海天祥质量技术服务有限公司 检测报告专用章

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Tests Conducted

1 Phthalate content test

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

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
Di-butyl 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
%= percentage based on dry weight of sample.

****

To be continued

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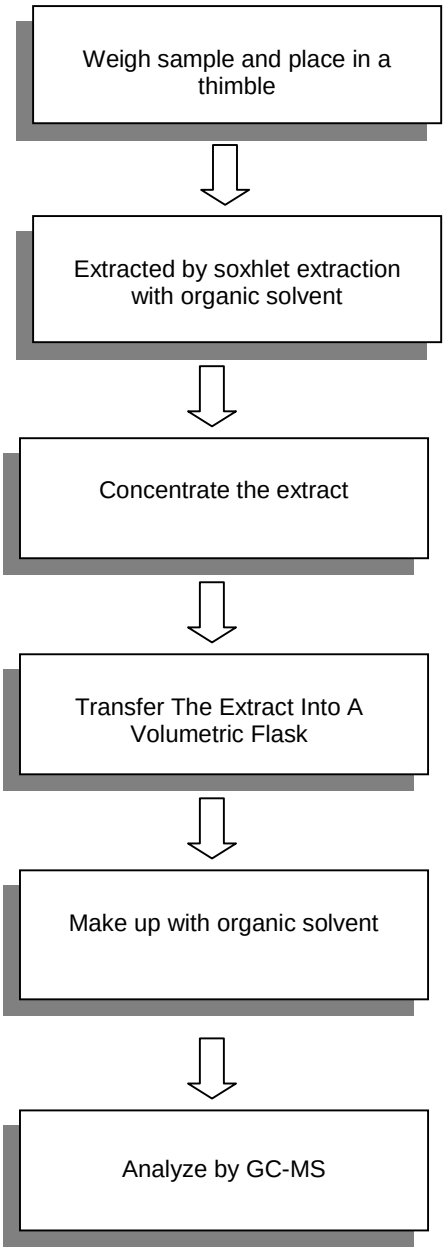
Tests Conducted

Measurement flowchart：

Test for phthalate content (EN14372)



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To be continued

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Tests Conducted

2 Halogen content

(Ⅰ) Test result summary：

Testing item	Result (ppm)
Fluorine (F)	ND
Chlorine (Cl)	100
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility of chemist：Grave Wang

(Ⅱ) Test method：

Testing item	Testing method	Reporting limit
Halogen content	With reference to EN 14582：2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark：Reporting limit = quantitation limit of analyte in sample

****

To be continued

(Ⅲ) MEASUREMENT FLOWCHART：

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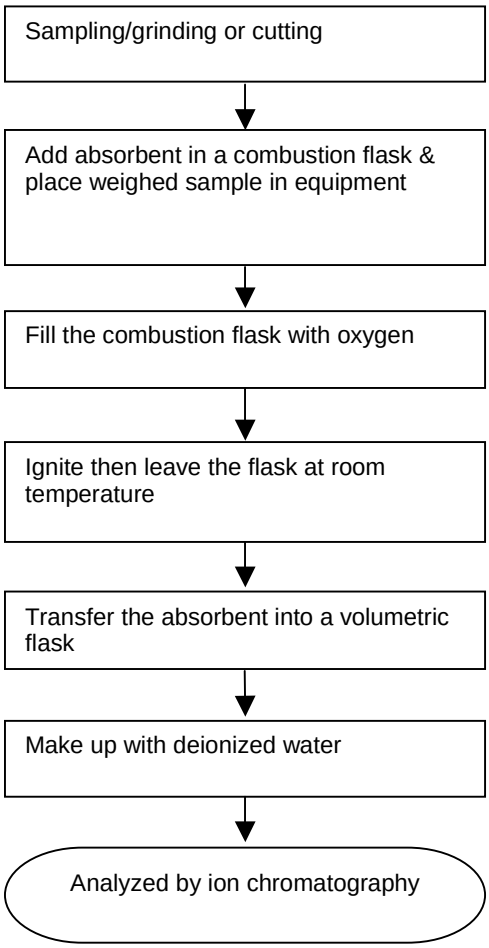
Tests Conducted

Test for halogen content

REFERENCE STANDARD：EN 14582



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To be continued

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Tests Conducted

3 (Ⅰ) Test Result Summary：

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

Remarks： ppm = Parts Per Million = mg/kg
ND = Not Detected

Responsibility of Chemist： Dent Fang / Leaf Liu

****

To be continued

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Tests Conducted

(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 2011/65/EU for homogeneous material.

(III) Test Method：

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

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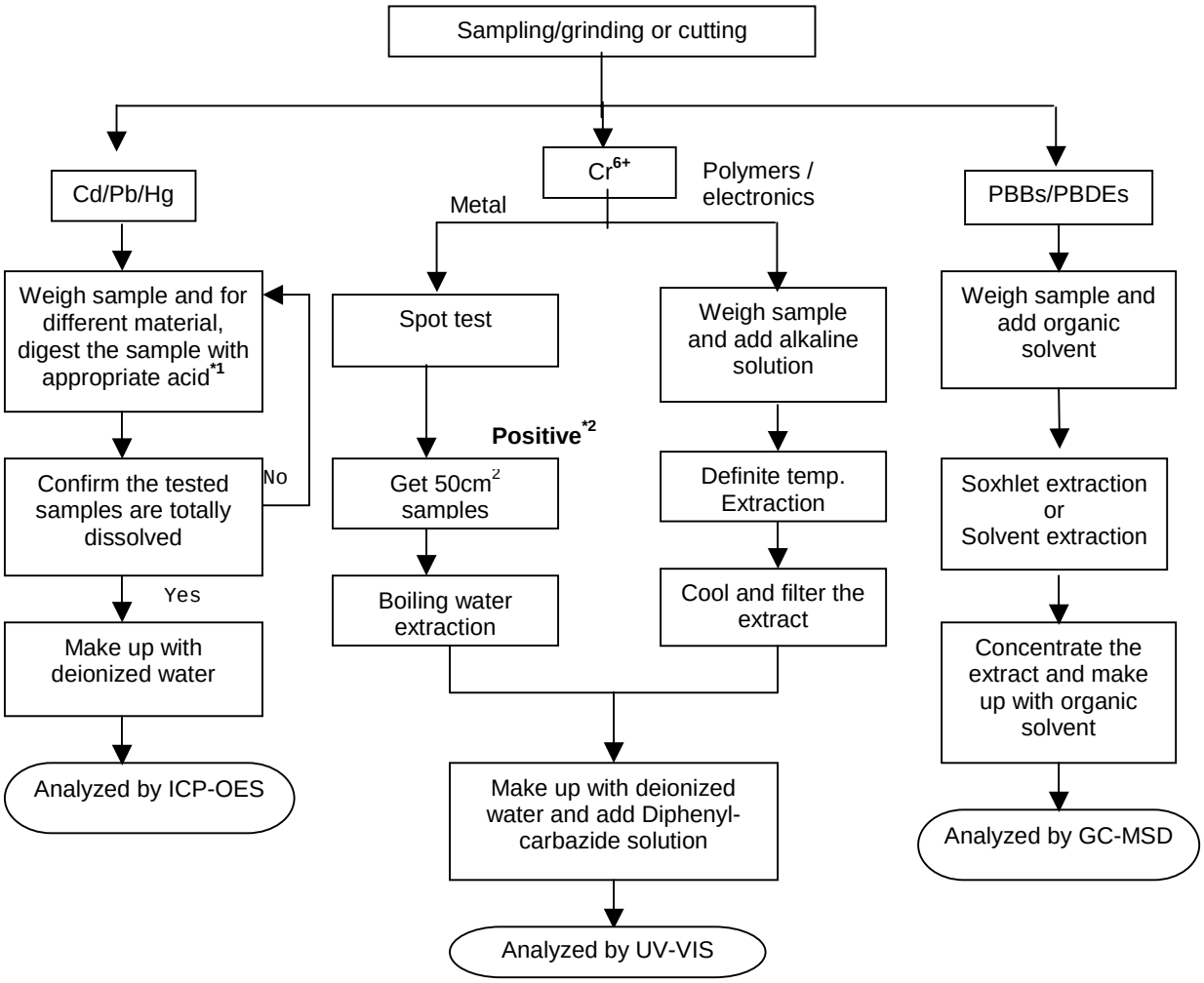
Tests Conducted

(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_2O_2,H_3BO_3
Metals	HNO_3,HCL,HF
Electronics	HNO_3,HCL,H_2O_2,HBF_4

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

****

To be continued

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Tests Conducted

4 Phthalate content test

With reference to CPSC-CH-C1001-09.3, by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
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
%= Percentage Based On Dry Weight Of Sample.

****

To be continued

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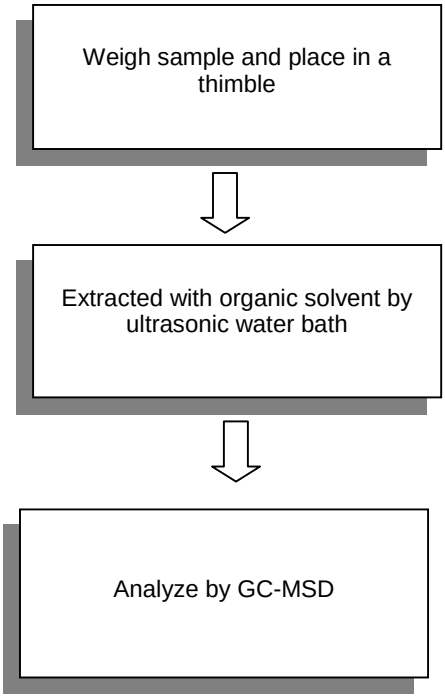
Tests Conducted

Measurement Flowchart:

Test For Phthalates Contents （CPSC-CH-C1001-09.3）



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To be continued

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Tests Conducted

5 HBCDD content

(Ⅰ)Test result summary：

Testing item	Result (ppm)
HBCDD (hexabromocyclododecane)	ND

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

(Ⅱ) Test method：

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

****

To be continued

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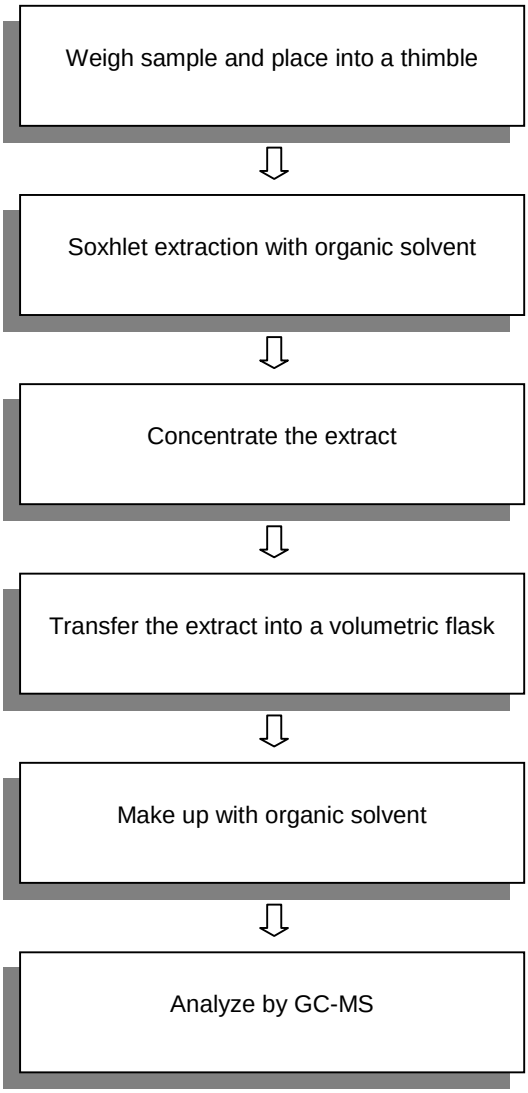
Tests Conducted

Measurement flowchart：

Test for HBCDD (hexabromocyclododecane) content



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To be continued

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

Test Report Number： SHAH00369073

Tests Conducted

Picture Of Sample

Date sample received：Mar.11, 2013

Testing period： Mar.11, 2013 to Mar.14, 2013

****

End of report

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Test Report Number: SHAH00369096

Applicant: LITTELFUSE,INC.
800 E. NORTHWEST HWY
Attn: A.DIVIETRO/D.UNTIEDT

Date: MAR 15, 2013

Sample Description:
One(1) submitted sample said to be : **Violet liquid.**
Item Name : Ink-violet.
Part No. : 425641.

****

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

Intertek Testing Services Ltd., Shanghai 上海天祥质量技术服务有限公司 检测报告专用章

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Tests Conducted

1 Phthalate content test

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

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
Di-butyl 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
% = percentage based on dry weight of sample.

****

To be continued

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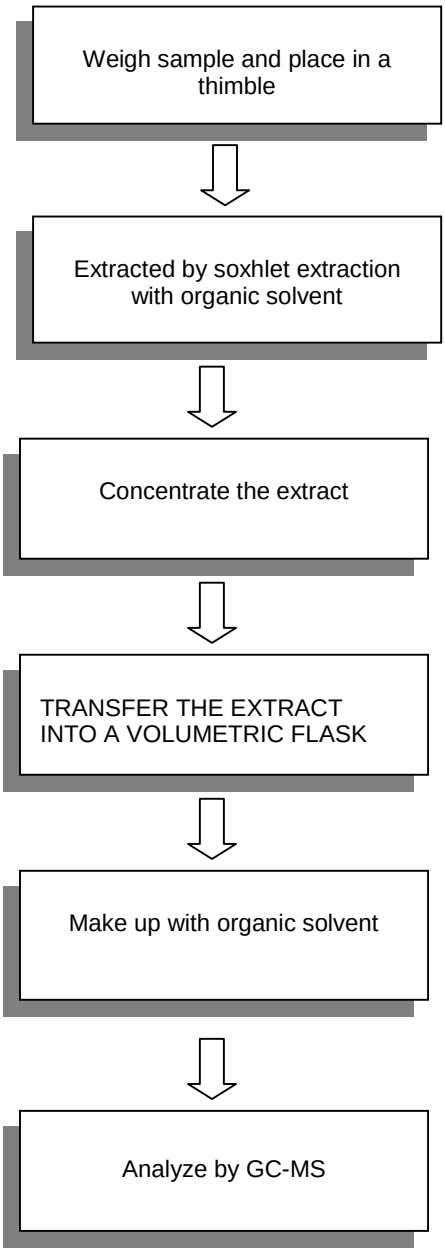
Tests Conducted
Measurement flowchart：

Test for phthalate content (EN14372)



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Tests Conducted

2 Halogen content

(Ⅰ) Test result summary：

Testing item	Result (ppm)
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：Grave Wang

(Ⅱ) Test method：

Testing item	Testing method	Reporting limit
Halogen content	With reference to EN 14582：2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark：Reporting limit = quantitation limit of analyte in sample

****

To be continued

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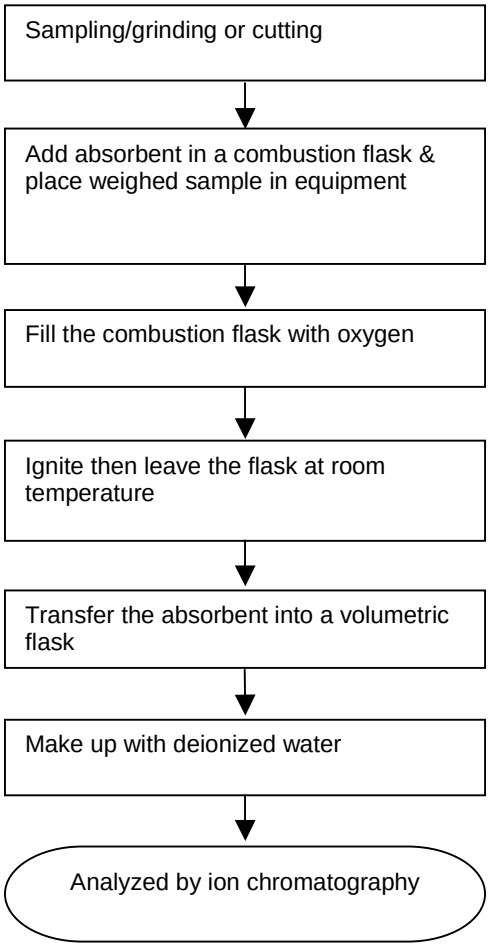
Tests Conducted

(III) MEASUREMENT FLOWCHART：

Test for halogen content
REFERENCE STANDARD：EN 14582



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Tests Conducted

3 (Ⅰ) Test Result Summary：

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

Remarks： ppm = parts per million = mg/kg
ND = Not Detected

Responsibility of Chemist： Dent Fang / Leaf Liu

****

To be continued

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Tests Conducted

(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 2011/65/EU for homogeneous material.

(Ⅲ) Test Method：

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

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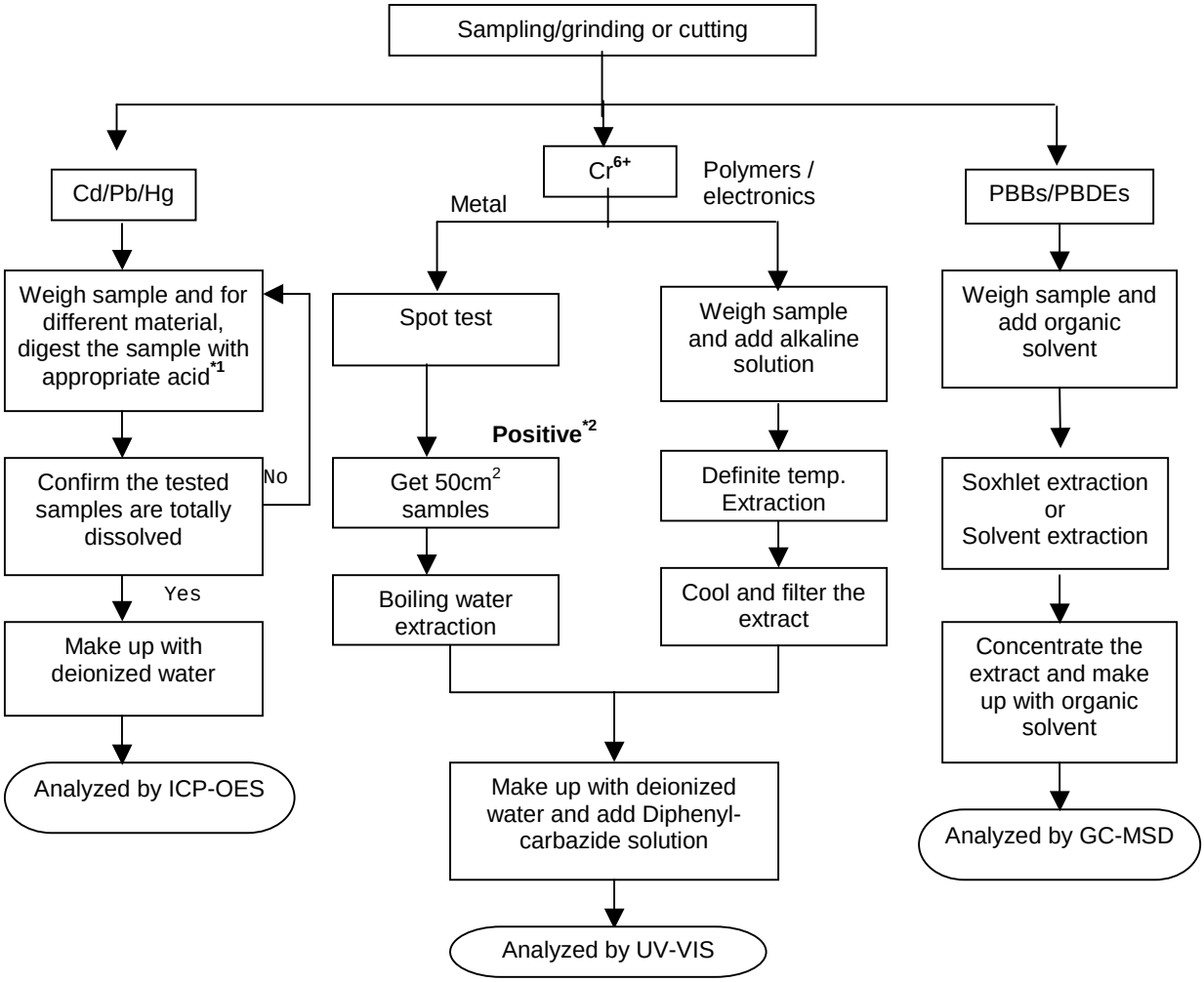
Tests Conducted

(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_2O_2,H_3BO_3
Metals	HNO_3,HCL,HF
Electronics	HNO_3,HCL,H_2O_2,HBF_4

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

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To be continued

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Tests Conducted

4 Phthalate content test

With reference to CPSC-CH-C1001-09.3, by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
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
% = percentage based on dry weight of sample.

****

To be continued

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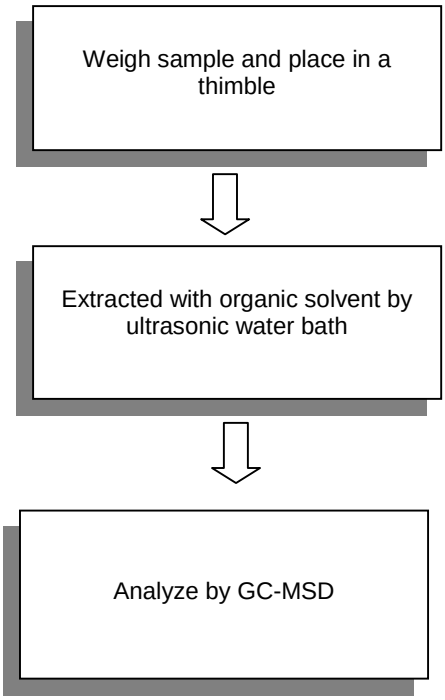
Tests Conducted
Measurement Flowchart:

Test For Phthalates Contents （CPSC-CH-C1001-09.3）



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To be continued

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Tests Conducted

5 HBCDD content

(Ⅰ)Test result summary：

Testing item	Result (ppm)
HBCDD (hexabromocyclododecane)	ND

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

(Ⅱ) Test method：

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

****

To be continued

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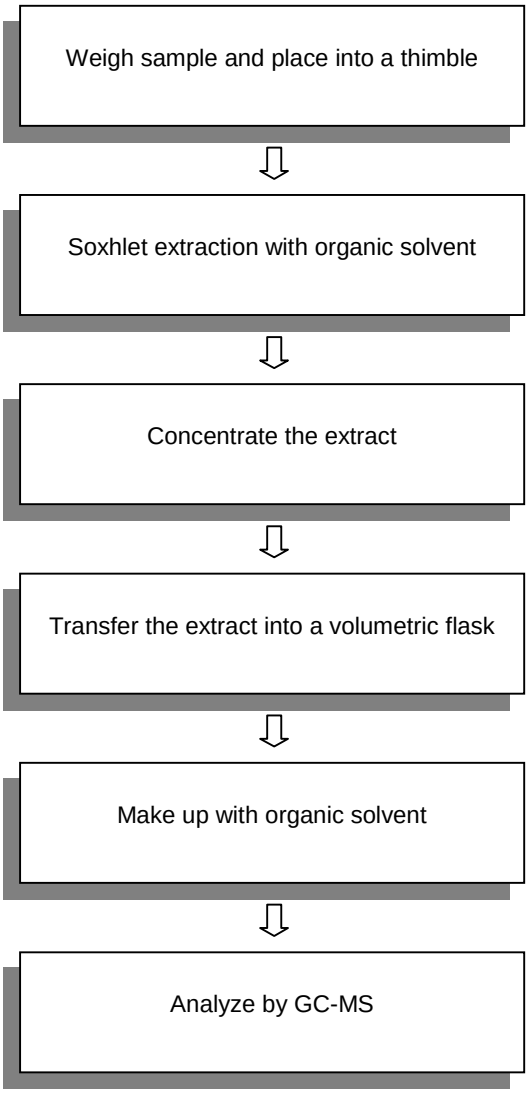
Tests Conducted

Measurement flowchart：

Test for HBCDD (hexabromocyclododecane) content



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Test Report Number： SHAH00369096

Tests Conducted

Picture of sample

Date sample received： Mar.11, 2013

Testing period： Mar.11, 2013 to Mar.14, 2013

****

End of report

This report is made solely on the basis of your instructions and/or information and materials supplied by you. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as is expressly contained in the terms and conditions governing Intertek's provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the Review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct.

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Test Report Number: SHAH00369087

Applicant: LITTELFUSE,INC.
800 E. NORTHWEST HWY
Attn: A.DIVIETRO/D.UNTIEDT

Date: MAR 15, 2013

Sample Description:
One(1) submitted sample said to be **Orange liquid.**
Item Name : Ink-orange.
Part No. : 425631.

****

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

Intertek Testing Services Ltd., Shanghai 上海天祥质量技术服务有限公司 检测报告专用章

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Tests Conducted

1 Phthalate content test

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

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
Di-butyl 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
%= percentage based on dry weight of sample.

****

To be continued

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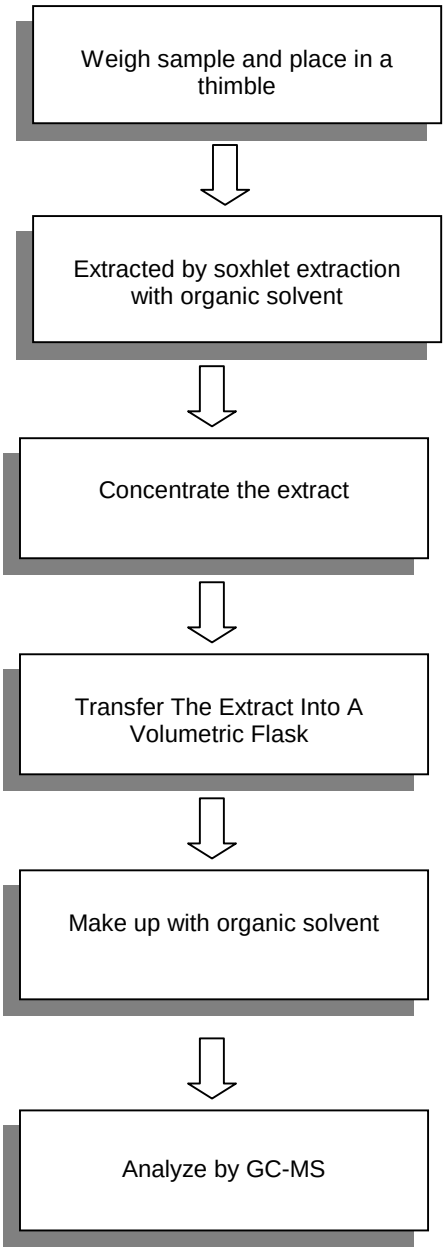
Tests Conducted

Measurement flowchart：

Test for phthalate content (EN14372)



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To be continued

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Tests Conducted

2 Halogen content

(Ⅰ) Test result summary：

Testing item	Result (ppm)
Fluorine (F)	ND
Chlorine (Cl)	100
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility of chemist：Grave Wang

(Ⅱ) Test method：

Testing item	Testing method	Reporting limit
Halogen content	With reference to EN 14582：2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark：Reporting limit = quantitation limit of analyte in sample

****

To be continued

(Ⅲ) MEASUREMENT FLOWCHART：

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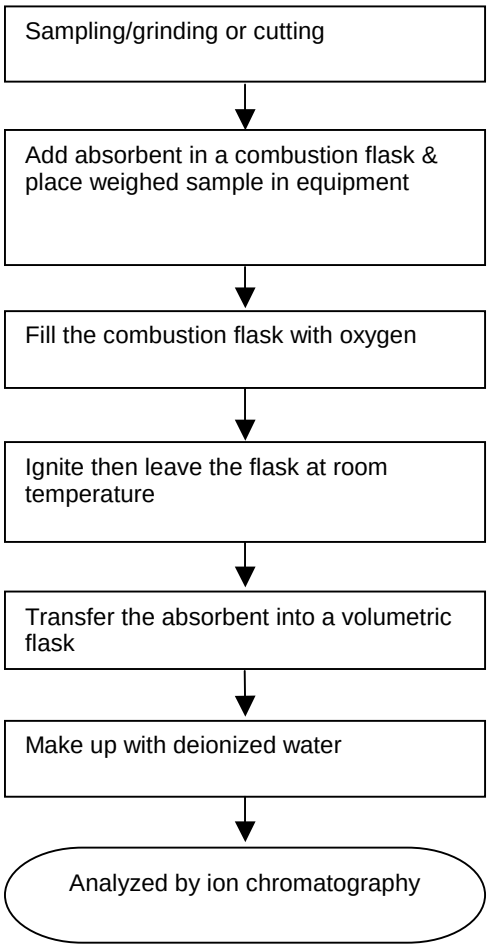
Tests Conducted

Test for halogen content

REFERENCE STANDARD：EN 14582



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To be continued

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Tests Conducted

3 (Ⅰ) Test Result Summary：

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

Remarks： ppm = Parts Per Million = mg/kg
ND = Not Detected

Responsibility of Chemist： Dent Fang / Leaf Liu

****

To be continued

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Tests Conducted

(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 2011/65/EU for homogeneous material.

(III) Test Method：

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

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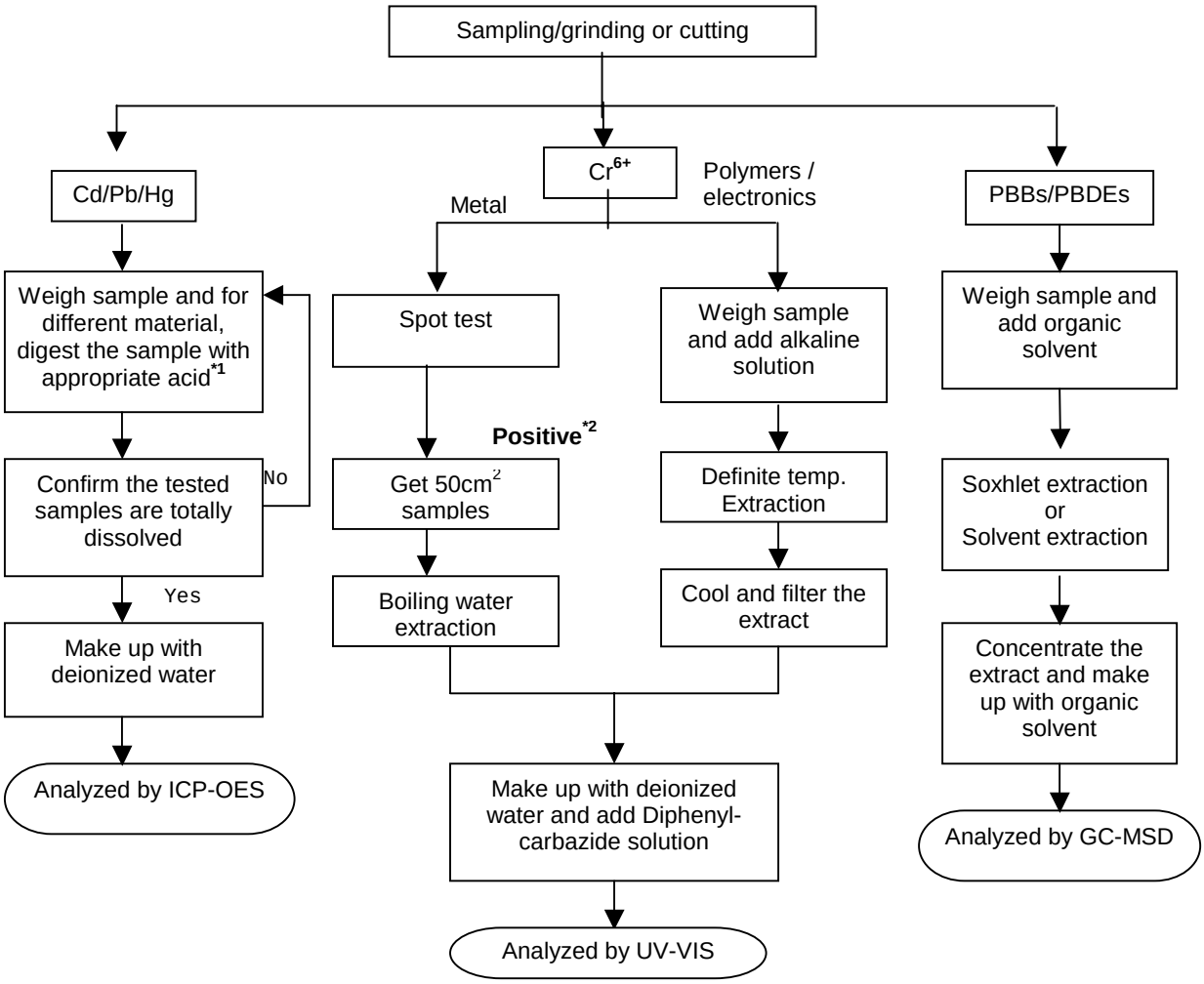
Tests Conducted

(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_2O_2,H_3BO_3
Metals	HNO_3,HCL,HF
Electronics	HNO_3,HCL,H_2O_2,HBF_4

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

****

To be continued

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Tests Conducted

4 Phthalate content test

With reference to CPSC-CH-C1001-09.3, by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
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
%= Percentage Based On Dry Weight Of Sample.

****

To be continued

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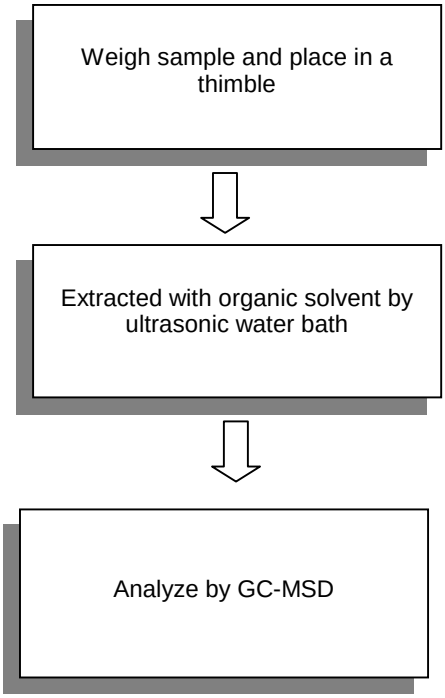
Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740
www.intertek.com www.intertek.com.cn

Tests Conducted

Measurement Flowchart:

Test For Phthalates Contents （CPSC-CH-C1001-09.3）



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To be continued

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Tests Conducted

5 HBCDD content

(Ⅰ)Test result summary：

Testing item	Result (ppm)
HBCDD (hexabromocyclododecane)	ND

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

(Ⅱ) Test method：

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

****

To be continued

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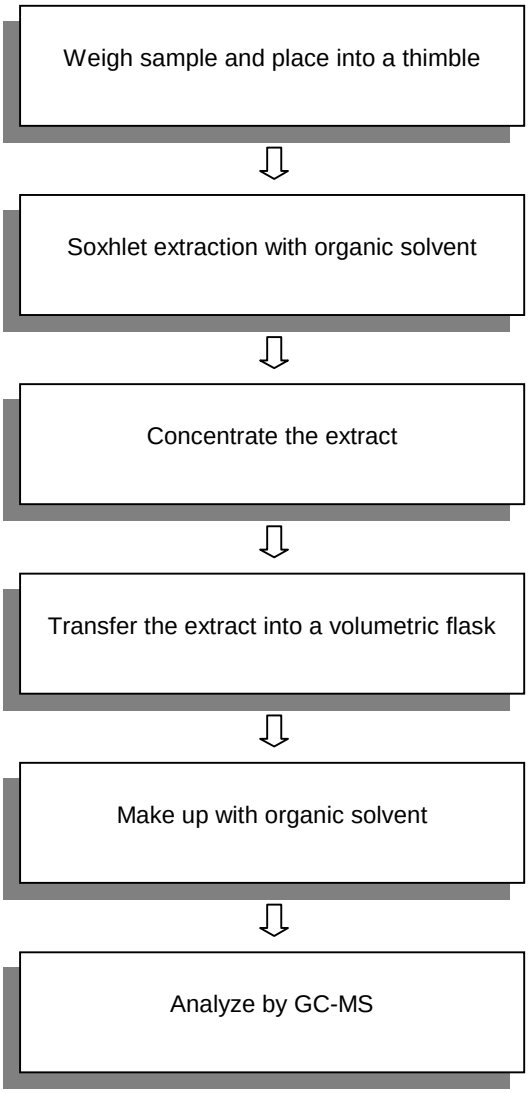
www.intertek.com www.intertek.com.cn

Tests Conducted

Measurement flowchart：

Test for HBCDD (hexabromocyclododecane) content



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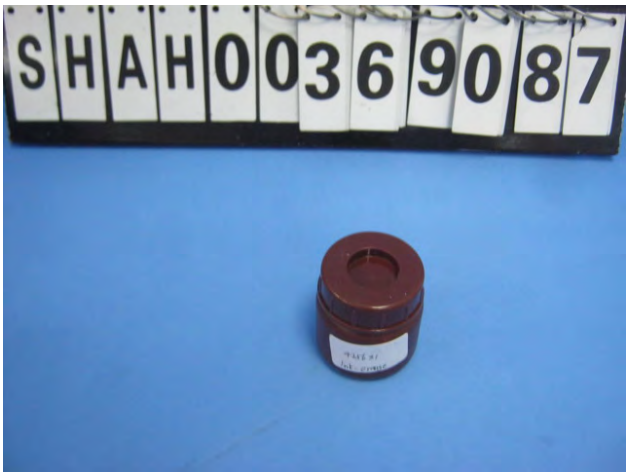
www.intertek.com www.intertek.com.cn

Test Report Number： SHAH00369087

Tests Conducted



Picture Of Sample

Date sample received：Mar.11, 2013

Testing period： Mar.11, 2013 to Mar.14, 2013

****

End of report

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Test Report Number: SHAH00369093

Applicant: LITTELFUSE,INC.
800 E. NORTHWEST HWY
Attn: A.DIVIETRO/D.UNTIEDT

Date: MAR 15, 2013

Sample Description:
One(1) submitted sample said to be : **Red liquid.**
Item Name : Ink-red.
Part No. : 425632.

****

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

Intertek Testing Services Ltd., Shanghai 上海天祥质量技术服务有限公司 检测报告专用章

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Tests Conducted

1 Phthalate content test

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

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
Di-butyl 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
% = percentage based on dry weight of sample.

****

To be continued

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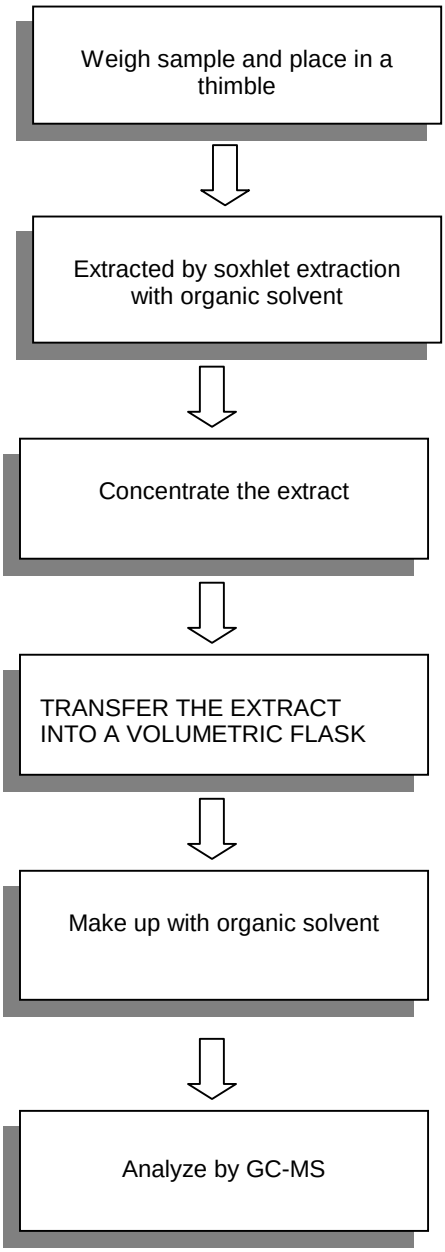
Tests Conducted
Measurement flowchart：

Test for phthalate content (EN14372)



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Tests Conducted

2 Halogen content

(Ⅰ) Test result summary：

Testing item	Result (ppm)
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：Grave Wang

(Ⅱ) Test method：

Testing item	Testing method	Reporting limit
Halogen content	With reference to EN 14582：2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark：Reporting limit = quantitation limit of analyte in sample

****

To be continued

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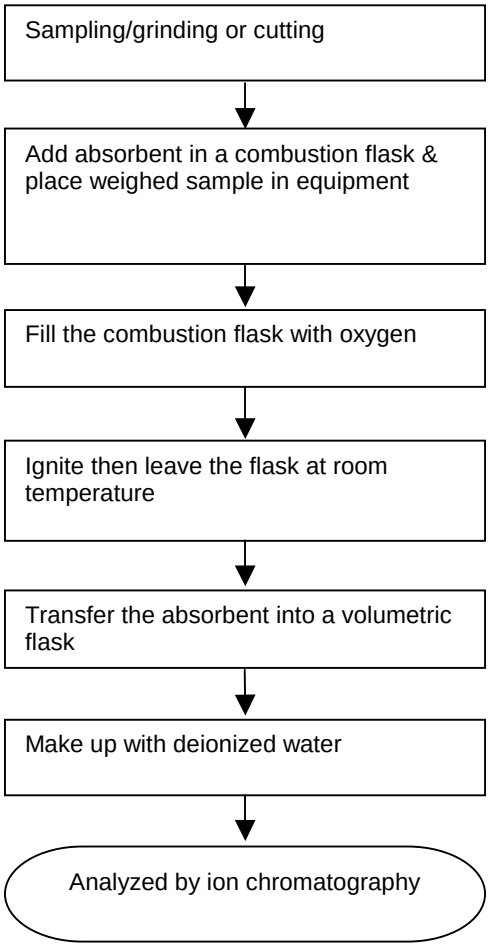
Tests Conducted

(III) MEASUREMENT FLOWCHART：

Test for halogen content
REFERENCE STANDARD：EN 14582



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Tests Conducted

3 (Ⅰ) Test Result Summary：

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

Remarks： ppm = parts per million = mg/kg
ND = Not Detected

Responsibility of Chemist： Dent Fang / Leaf Liu

****

To be continued

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Tests Conducted

(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 2011/65/EU for homogeneous material.

(Ⅲ) Test Method：

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

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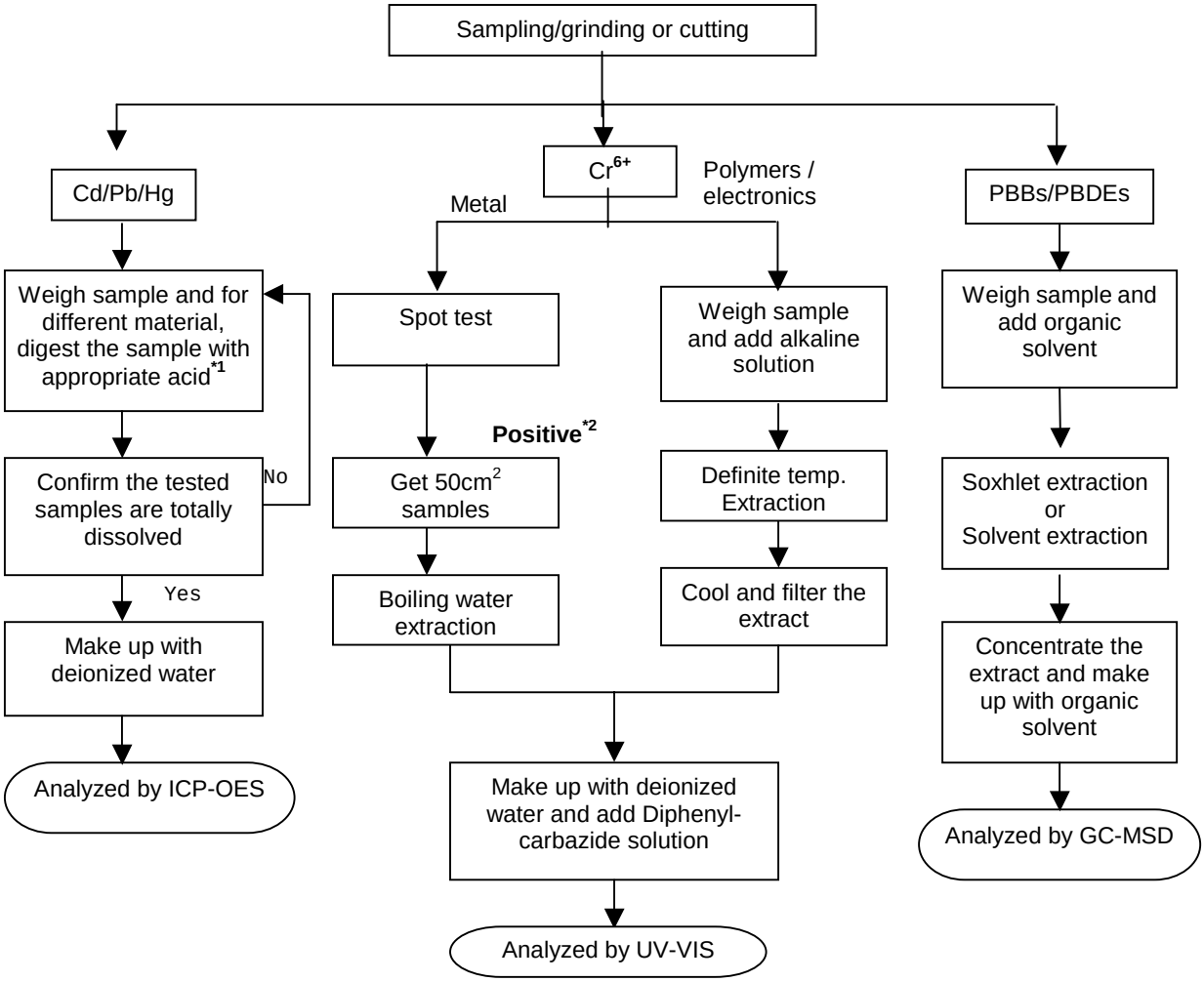
Tests Conducted

(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_2O_2,H_3BO_3
Metals	HNO_3,HCL,HF
Electronics	HNO_3,HCL,H_2O_2,HBF_4

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

****

To be continued

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Tests Conducted

4 Phthalate content test

With reference to CPSC-CH-C1001-09.3, by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
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
% = percentage based on dry weight of sample.

****

To be continued

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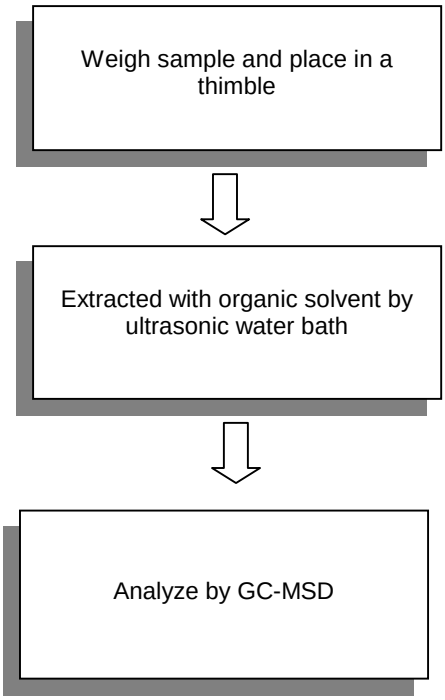
Tests Conducted
Measurement Flowchart:

Test For Phthalates Contents （CPSC-CH-C1001-09.3）



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Tests Conducted

5 HBCDD content

(Ⅰ)Test result summary：

Testing item	Result (ppm)
HBCDD (hexabromocyclododecane)	ND

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

(Ⅱ) Test method：

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

****

To be continued

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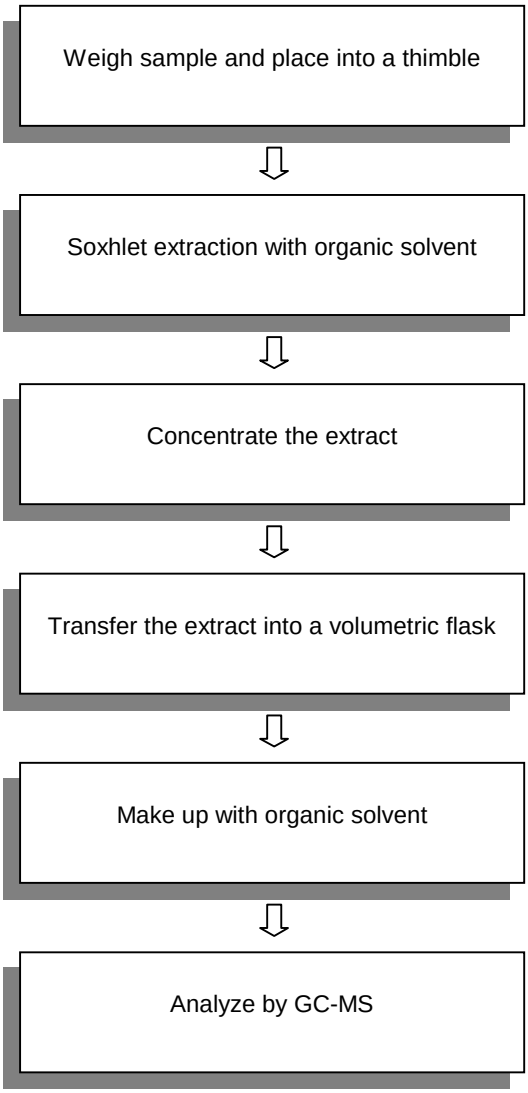
Tests Conducted

Measurement flowchart：

Test for HBCDD (hexabromocyclododecane) content



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Test Report Number： SHAH00369093

Tests Conducted

Picture of sample

Date sample received： Mar.11, 2013

Testing period： Mar.11, 2013 to Mar.14, 2013

****

End of report

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www.intertek.com.cn
China Toll-Free: 800 999 1338

TEST REPORT NUMBER: SHAH00315575

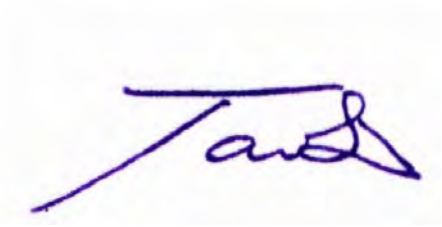
APPLICANT: LITTELFUSE,INC. DATE: MAY 15, 2012
LITTELFUSE,INC.
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
One (1) submitted sample said to be **deep yellow ink.**
Part Description : Ink-deep yellow.
Part Number : 425634.
Date Sample Received : MAY.7, 2012.
Date Test Started : MAY.7, 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

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TEST REPORT NUMBER: SHAH00315575

TESTS CONDUCTED

1 PHTHALATE CONTENT TEST

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

TESTED COMPOUND	RESULT (%,W/W)	LIMIT(%,W/W) (MAX.)
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 & AMENDENT 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

2 PHTHALATE CONTENT TEST

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

	RESULT (%, w/w)	LIMIT (%, w/w) (MAX.)
DIBUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE (DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

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

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

****

TO BE CONTINUED

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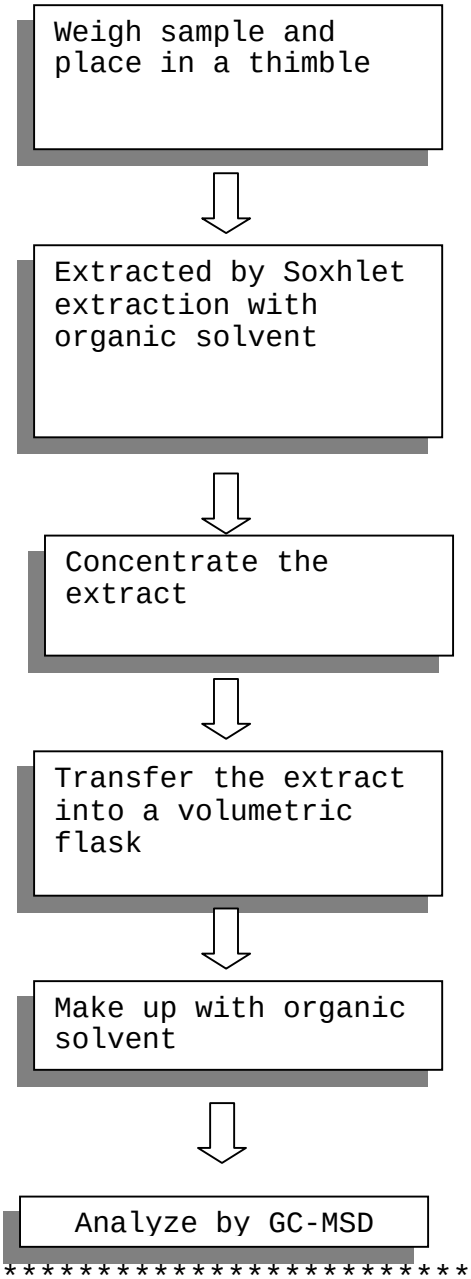
www.intertek.com.cn
China Toll-Free: 800 999 1338

TEST REPORT NUMBER: SHAH00315575

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



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TEST REPORT NUMBER: SHAH00315575

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT(ppm)
HBCD (HEXABROMOCYCLODODECANE)	ND

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

(B) TEST METHOD :

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

****

TO BE CONTINUED

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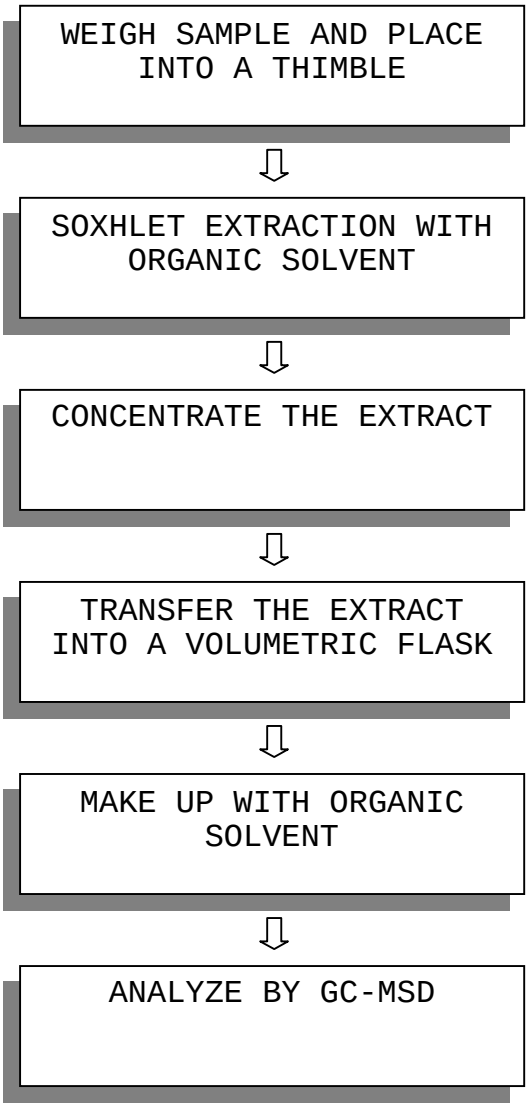
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TO BE CONTINUED

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Tel: +86 21 6120 6565
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www.intertek.com
www.intertek.com.cn
China Toll-Free: 800 999 1338

TEST REPORT NUMBER: SHAH00315575

TESTS CONDUCTED

4 (Ⅰ) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	90
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

(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

****

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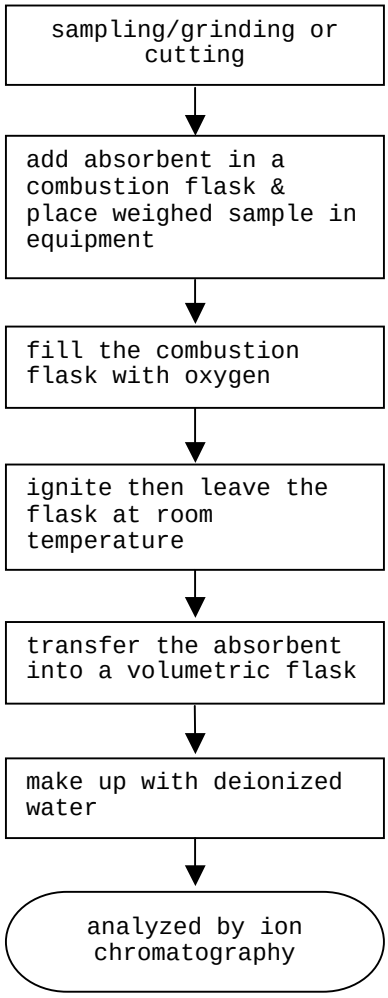
TEST REPORT NUMBER: SHAH00315575

TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



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TEST REPORT NUMBER: SHAH00315575

TESTS CONDUCTED

5 (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

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

Responsibility Of Chemist :Dent Fang / Ken He

****

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TEST REPORT NUMBER: SHAH00315575

TESTS CONDUCTED

(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 Ehters (PBDEs)	0.1% (1000ppm)

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

****

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TEST REPORT NUMBER: SHAH00315575

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 analyte in sample

Date Sample Received : MAY 7, 2012
Testing Period : MAY 7, 2012 TO MAY 11, 2012

****

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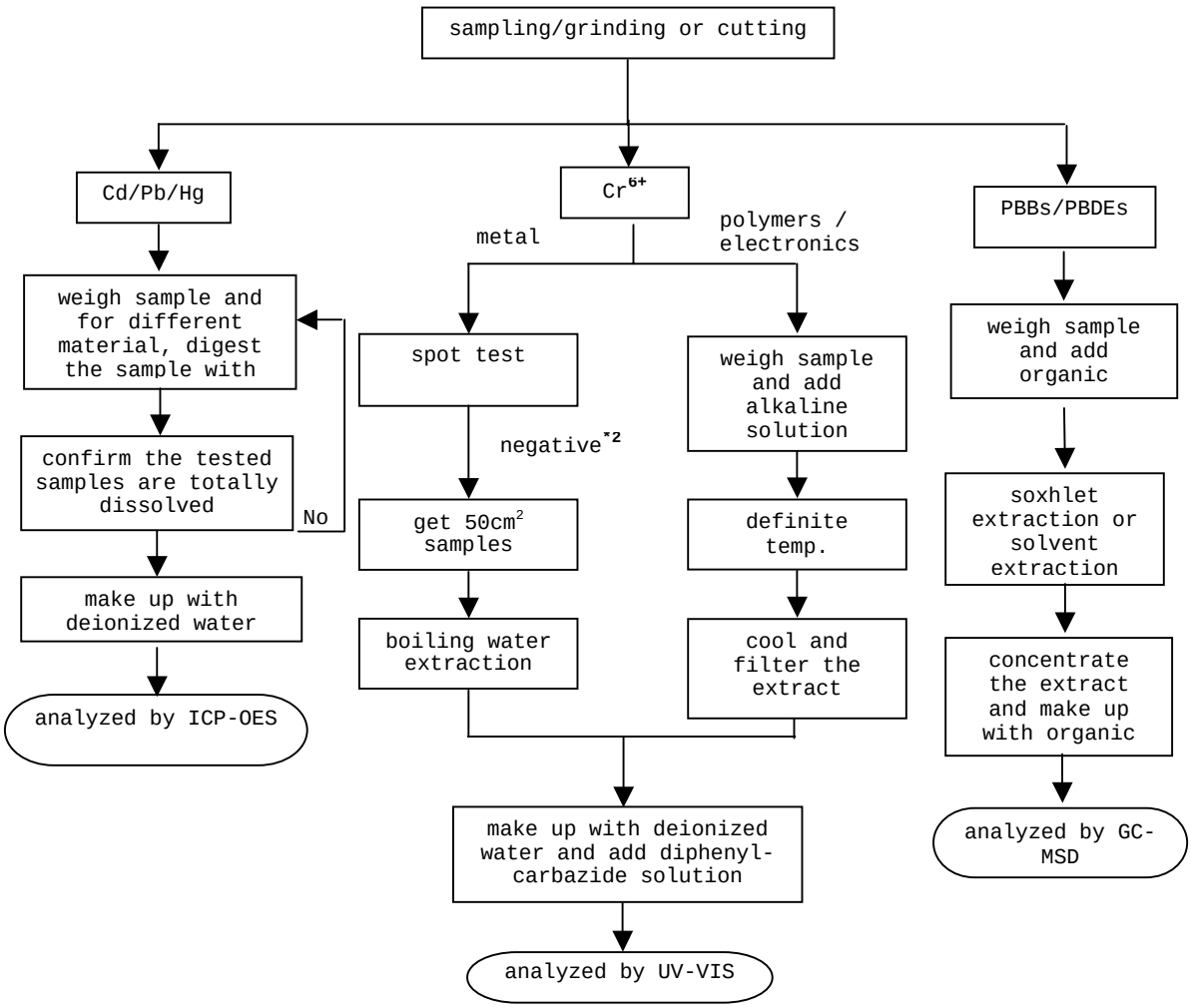
TEST REPORT NUMBER: SHAH00315575

TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

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



****

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www.intertek.com.cn
China Toll-Free: 800 999 1338

TEST REPORT NUMBER: SHAH00315575

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO_3, HCl, HF, H_2O_2, H_3BO_3
Metals	HNO_3, HCl, HF
Electronics	HNO_3, HCl, H_2O_2, HBF_4

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

****

TO BE CONTINUED

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TEST REPORT NUMBER: SHAH00315575

TESTS CONDUCTED

****

END OF REPORT

Test Report Number: SHAH00369079

Applicant: LITTELFUSE,INC.
800 E. NORTHWEST HWY
Attn: A.DIVIETRO/D.UNTIEDT

Date: MAR 15, 2013

Sample Description:
One(1) submitted sample said to be **Blue liquid.**
Item Name : Ink-blue.
Part No. : 425635.

****

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

Intertek Testing Services Ltd., Shanghai 上海天祥质量技术服务有限公司 检测报告专用章

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Tests Conducted

1 Phthalate content test

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

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
Di-butyl 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
% = Percentage based on dry weight of sample

****

To Be Continued

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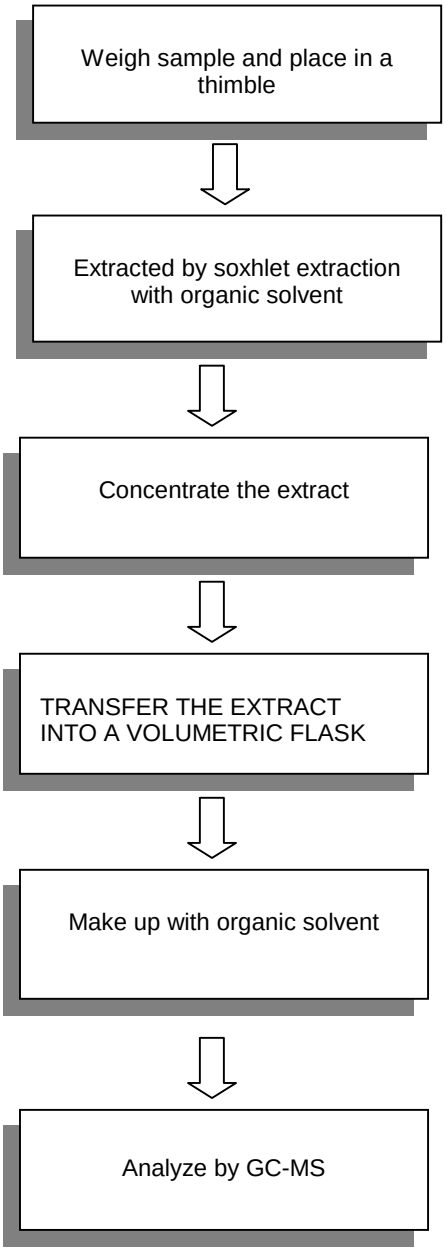
Tests Conducted

Measurement flowchart：

Test for phthalate content (EN14372)



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To Be Continued

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Tests Conducted

2 Halogen content

(Ⅰ) Test result summary：

Testing item	Result (ppm)
Fluorine (F)	ND
Chlorine (Cl)	100
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility of chemist：Grave Wang

(Ⅱ) Test method：

Testing item	Testing method	Reporting limit
Halogen content	With reference to EN 14582：2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark：Reporting limit = quantitation limit of analyte in sample

****

To Be Continued

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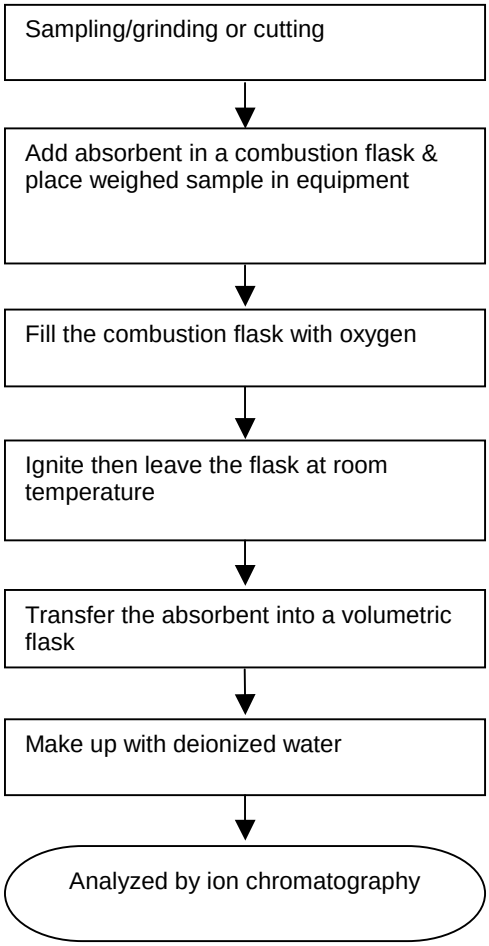
Tests Conducted

(III) MEASUREMENT FLOWCHART：

Test for halogen content
Reference Standard：EN 14582



****

To Be Continued

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

Tests Conducted

3 (Ⅰ) Test Result Summary：

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

Remarks： ppm = Parts Per Million = mg/kg
ND = Not Detected

Responsibility of Chemist: Dent Fang / Leaf Liu

****

To Be Continued

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Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740
www.intertek.com www.intertek.com.cn

Tests Conducted

(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 2011/65/EU for homogeneous material.

(Ⅲ) Test Method：

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

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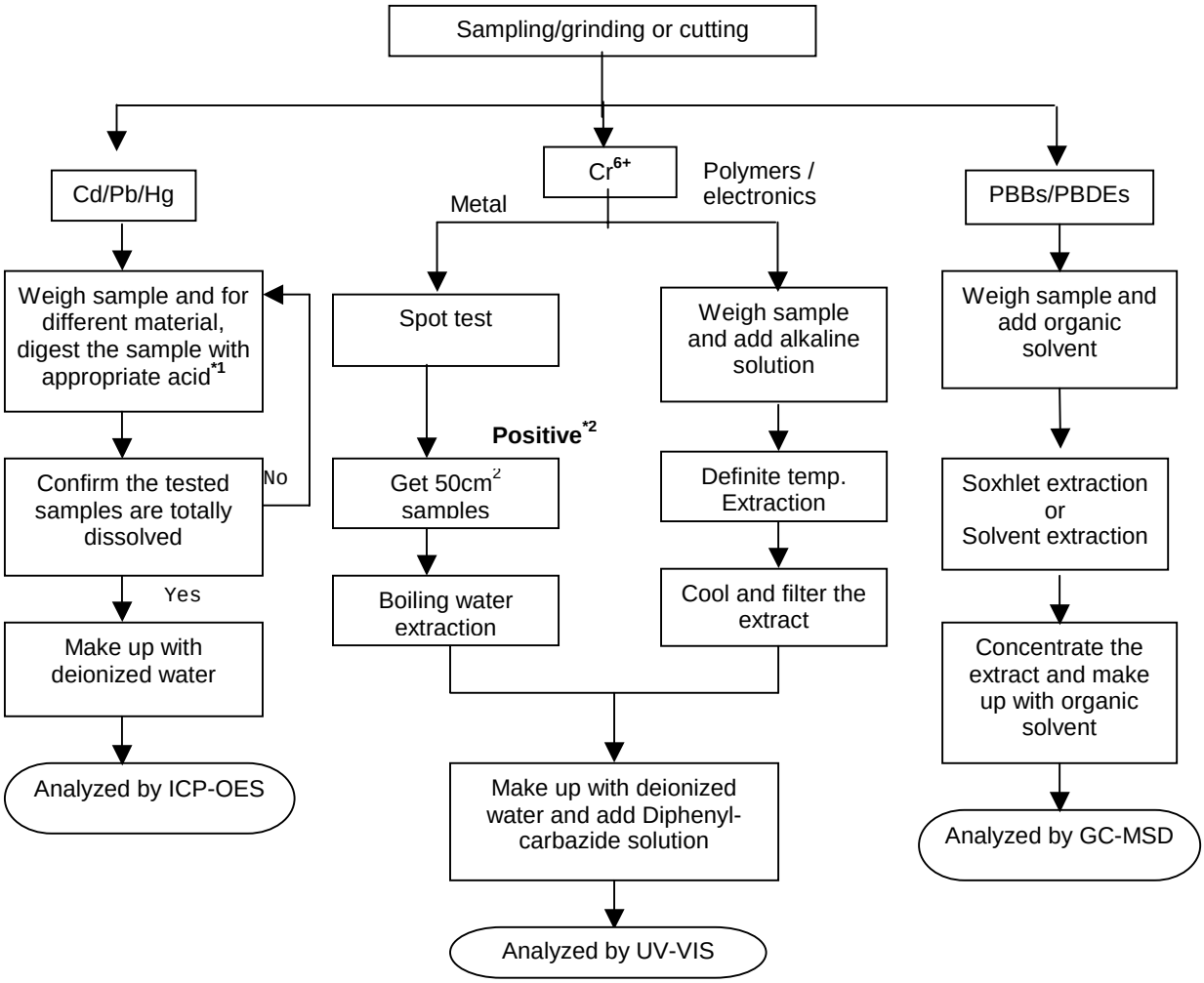
Tests Conducted

(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_2O_2,H_3BO_3
Metals	HNO_3,HCL,HF
Electronics	HNO_3,HCL,H_2O_2,HBF_4

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

****

To Be Continued

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Tests Conducted

4 Phthalate content test

With reference to CPSC-CH-C1001-09.3, by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
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
% = Percentage based on dry weight of sample

****

To Be Continued

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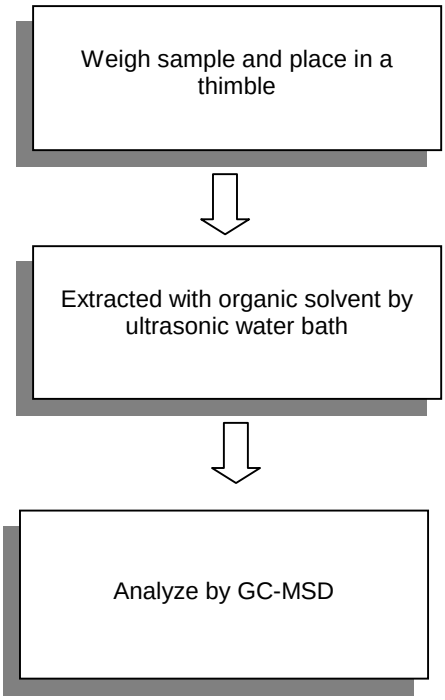
Tests Conducted

Measurement Flowchart:

Test For Phthalates Contents （CPSC-CH-C1001-09.3）



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To Be Continued

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Tests Conducted

5 HBCDD content

(Ⅰ)Test result summary：

Testing item	Result (ppm)
HBCDD (hexabromocyclododecane)	ND

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

(Ⅱ) Test method：

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

****

To Be Continued

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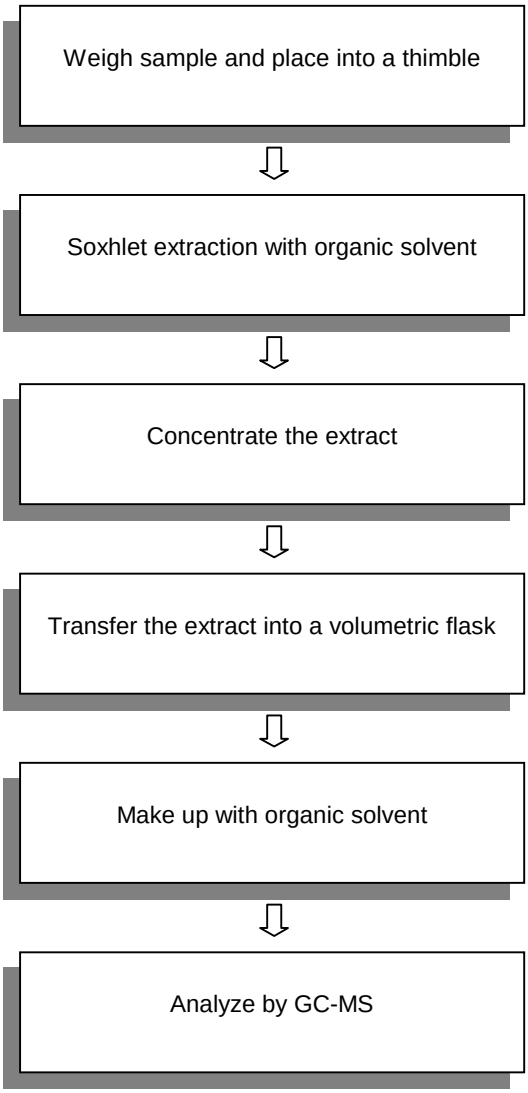
Tests Conducted

Measurement flowchart：

Test for HBCDD (hexabromocyclododecane) content



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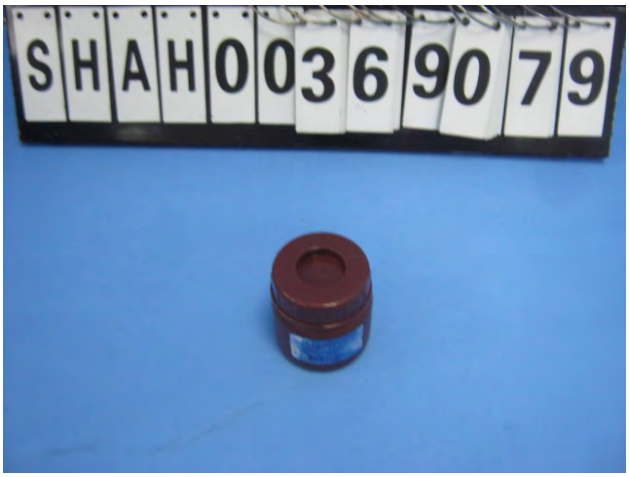
Test Report Number： SHAH00369079

Tests Conducted



Picture Of Sample

Date sample received：Mar.11, 2013

Testing period：Mar.11, 2013 To Mar.14, 2013

****

End Of Report

This report is made solely on the basis of your instructions and/or information and materials supplied by you. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as is expressly contained in the terms and conditions governing Intertek's provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the Review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct.

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TEST REPORT NUMBER: SHAH00315583

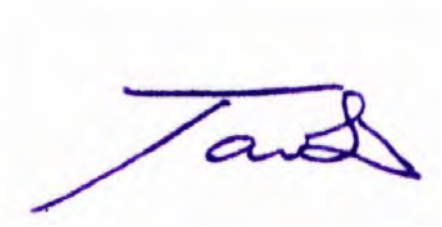
APPLICANT: LITTELFUSE,INC. DATE: MAY 14, 2012
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
One (1) submitted sample said to be **brown ink.**
Part Description : Ink-brown.
Part Number : 425636.
Date Sample Received : MAY.7, 2012.
Date Test Started : MAY.7, 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

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TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

1 PHTHALATE CONTENT TEST

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

TESTED COMPOUND	RESULT (%,W/W)	LIMIT(%,W/W) (MAX.)
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 & AMENDENT NO.552/2009 (FORMERLY KNOWN AS DIRECTIVE 2005/84/EC) FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

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

****

TO BE CONTINUED

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TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

2 PHTHALATE CONTENT TEST

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

	RESULT (%, w/w)	LIMIT (%, w/w) (MAX.)
DIBUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE (DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

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

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

****

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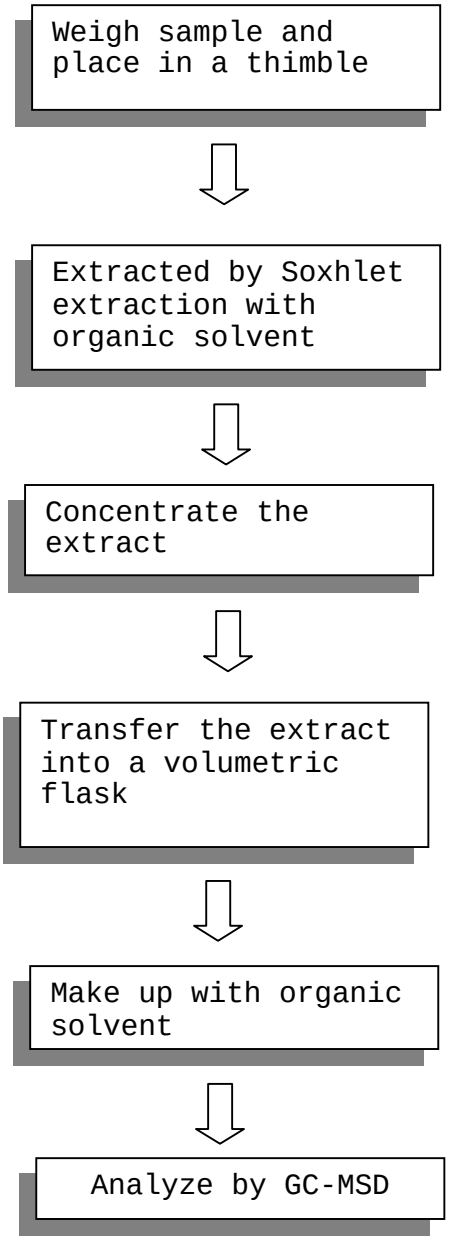
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



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TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT(ppm)
HBCD (HEXABROMOCYCLODODECANE)	ND

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

(B) TEST METHOD :

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

****

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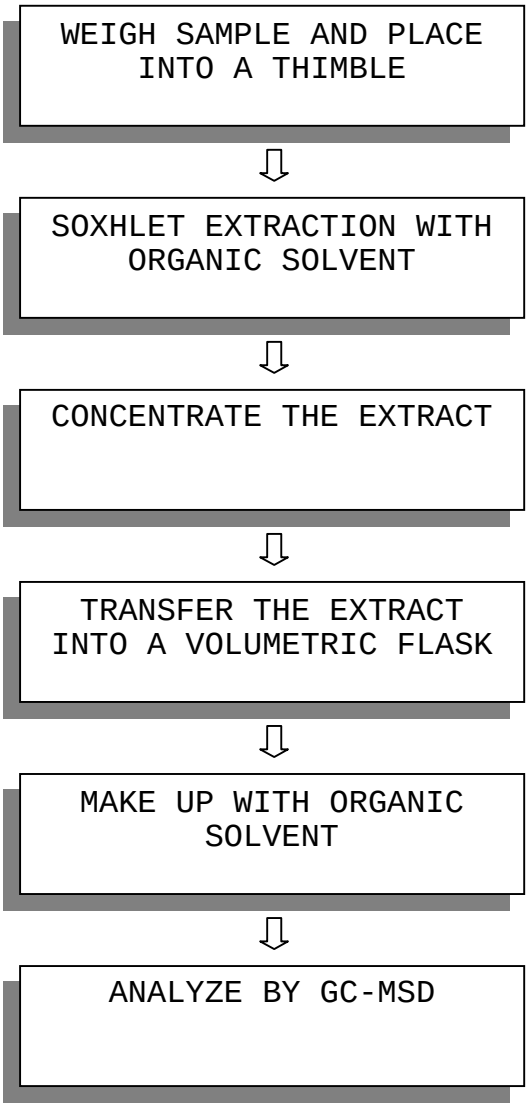
TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

4 (Ⅰ) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	100
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

(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

****

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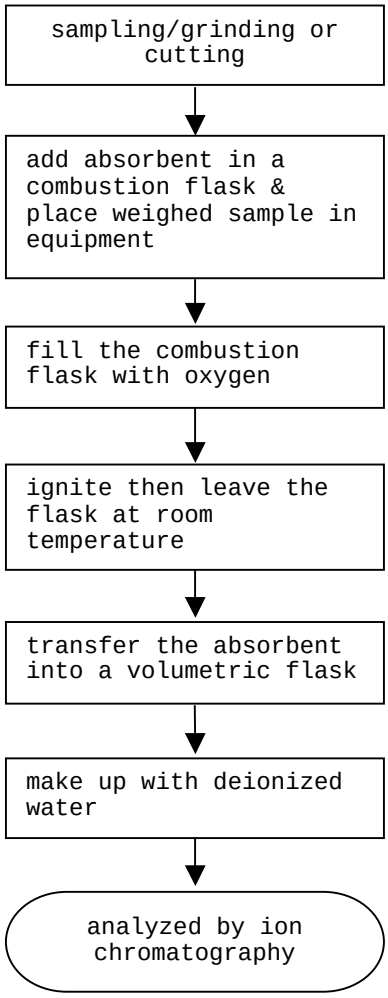
TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



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TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

5 (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

****

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TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

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

Responsibility Of Chemist :Dent Fang / Ken He

(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 Ehters (PBDEs)	0.1% (1000ppm)

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

****

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TEST REPORT NUMBER: SHAH00315583

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 analyte in sample

Date Sample Received : MAY 7, 2012
Testing Period : MAY 7, 2012 TO MAY 11, 2012

****

TO BE CONTINUED

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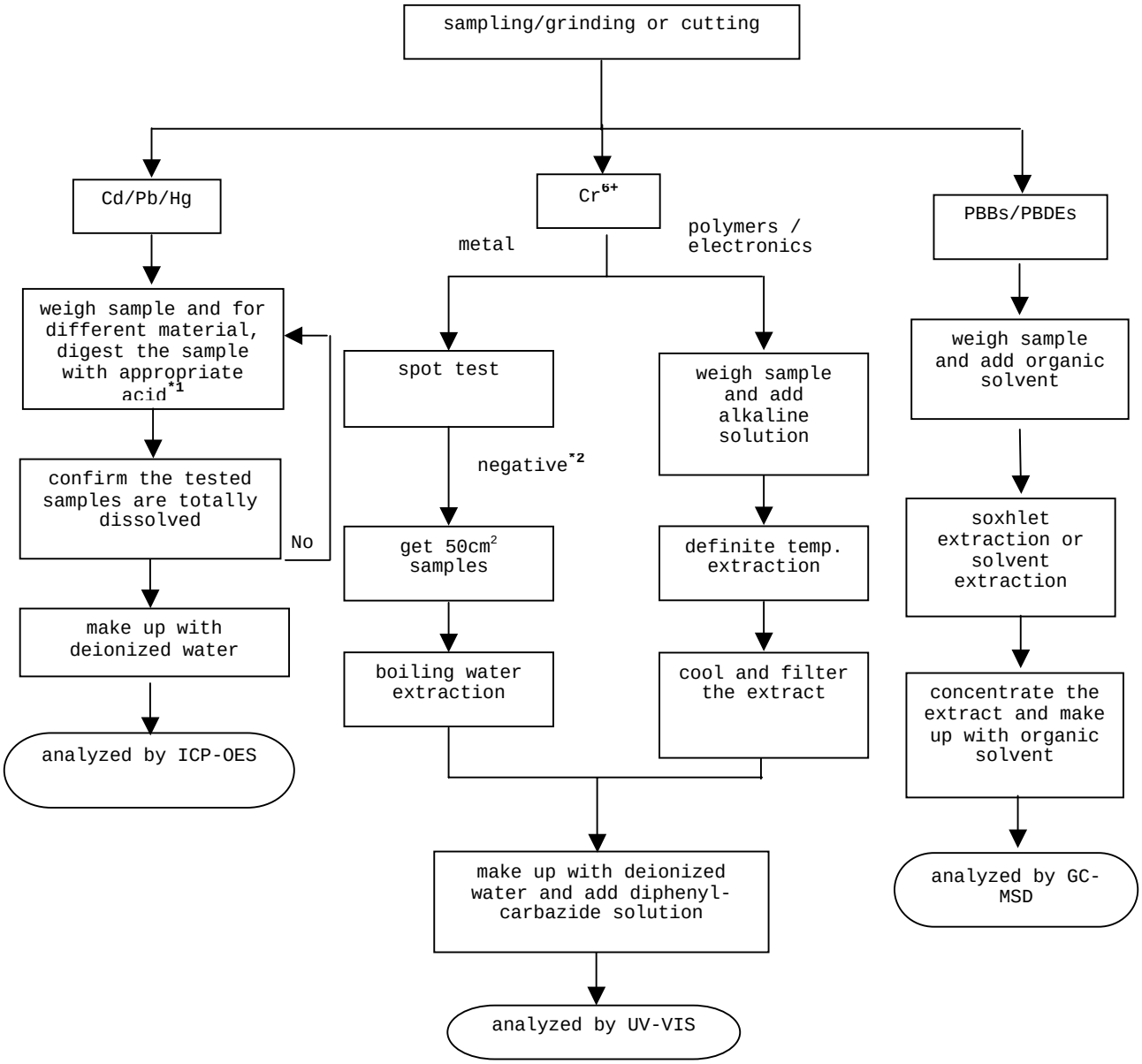
TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

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



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TO BE CONTINUED

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TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO_3, HCl, HF, H_2O_2, H_3BO_3
Metals	HNO_3, HCl, HF
Electronics	HNO_3, HCl, H_2O_2, HBF_4

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

****

TO BE CONTINUED

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TEST REPORT NUMBER: SHAH00315583

TESTS CONDUCTED

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END OF REPORT

Test Report Number: SHAH00369083

Applicant: LITTELFUSE,INC.
800 E. NORTHWEST HWY
Attn: A.DIVIETRO/D.UNTIEDT

Date: MAR 15, 2013

Sample Description:
One(1) submitted sample said to be : **Green liquid.**
Item Name : Ink-green.
Part No. : 425637.

****

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

Intertek Testing Services Ltd., Shanghai 上海天祥质量技术服务有限公司 检测报告专用章

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Tests Conducted

1 Phthalate content test

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

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
Di-butyl 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
% = percentage based on dry weight of sample

****

To be continued

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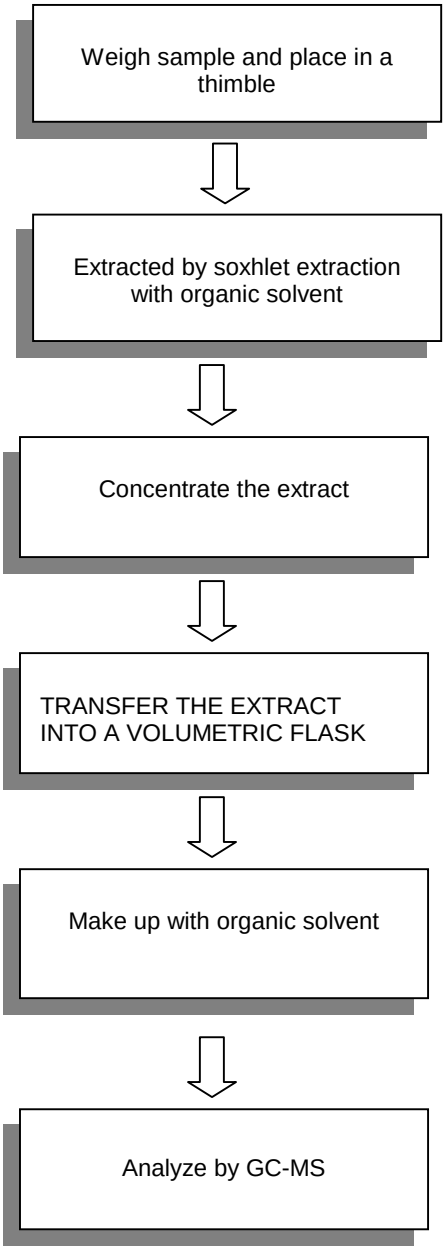
Tests Conducted

Measurement flowchart：

Test for phthalate content (EN14372)



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To be continued

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Tests Conducted

2 Halogen content

(Ⅰ) Test result summary：

Testing item	Result (ppm)
Fluorine (F)	ND
Chlorine (Cl)	100
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility of chemist：Grave Wang

(Ⅱ) Test method：

Testing item	Testing method	Reporting limit
Halogen content	With reference to EN 14582：2007 by combustion flask with oxygen and determined by ion chromatography	50 ppm

Remark：Reporting limit = quantitation limit of analyte in sample

****

To be continued

(Ⅲ) MEASUREMENT FLOWCHART：

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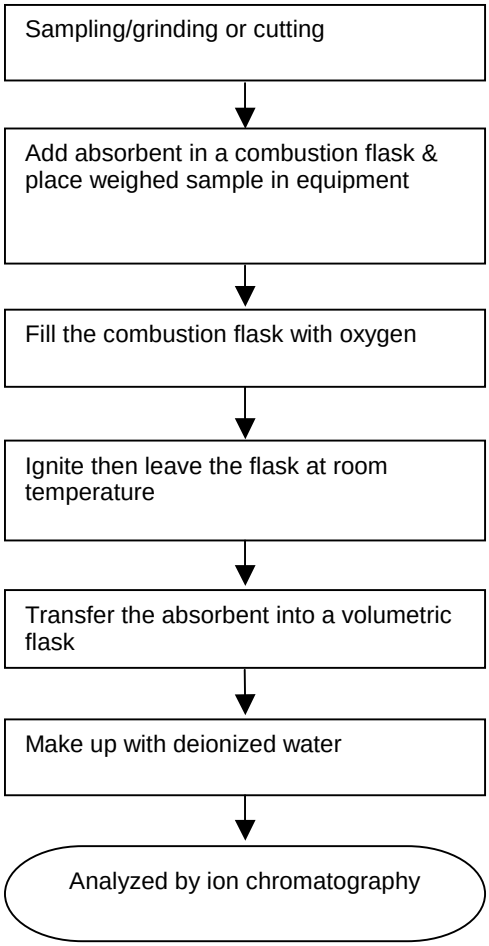
Tests Conducted

Test for halogen content
REFERENCE STANDARD：EN 14582



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To be continued

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Tests Conducted

3. (Ⅰ) Test Result Summary：

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

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 2011/65/EU for homogeneous material.

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To be continued

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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

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To be continued

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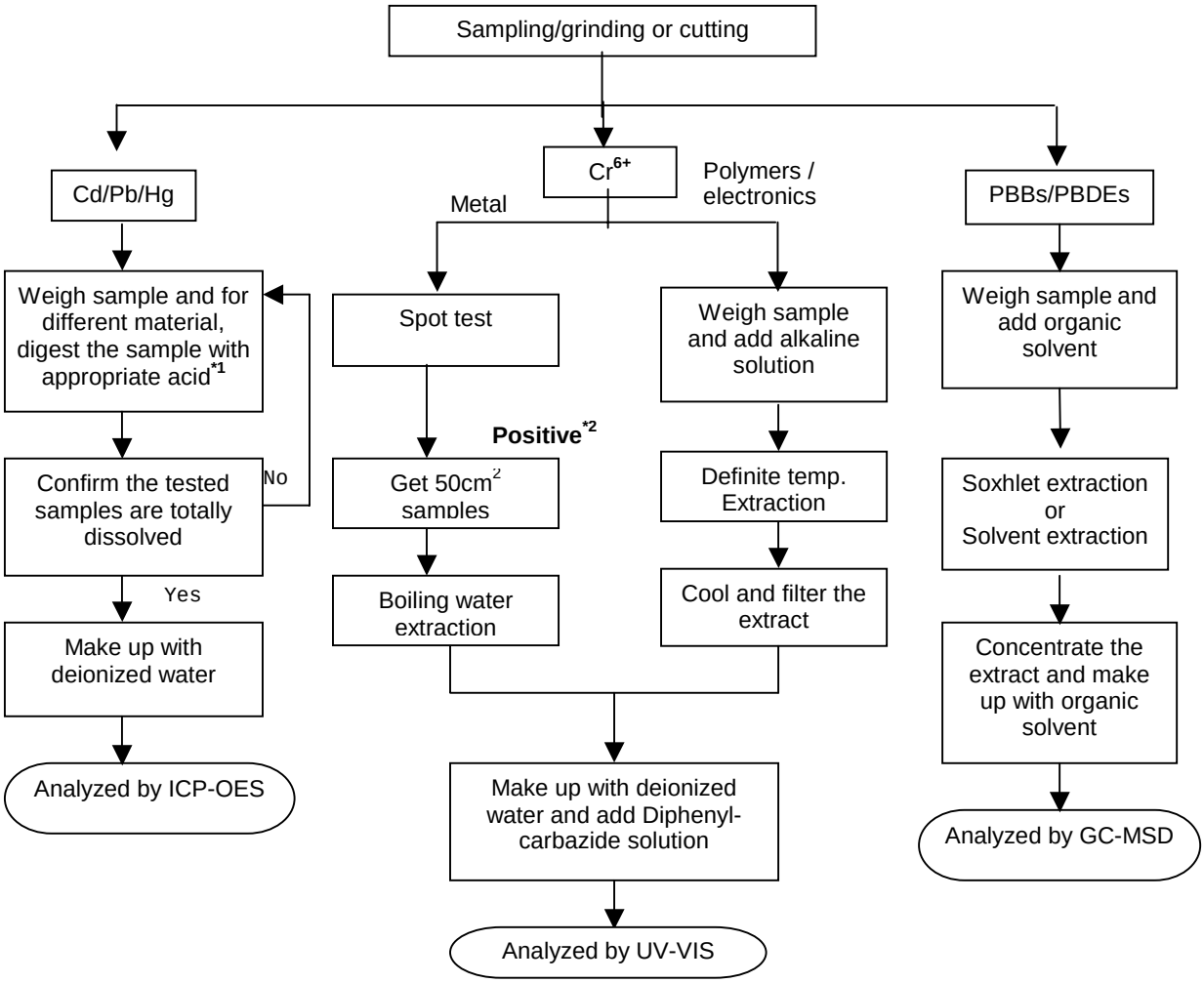
Tests Conducted

(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_2O_2,H_3BO_3
Metals	HNO_3,HCL,HF
Electronics	HNO_3,HCL,H_2O_2,HBF_4

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

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To be continued

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Tests Conducted

4 Phthalate content test

With reference to CPSC-CH-C1001-09.3, by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Tested compound	Result (%,w/w)	Limit(%,w/w) (MAX.)
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
% = percentage based on dry weight of sample

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To be continued

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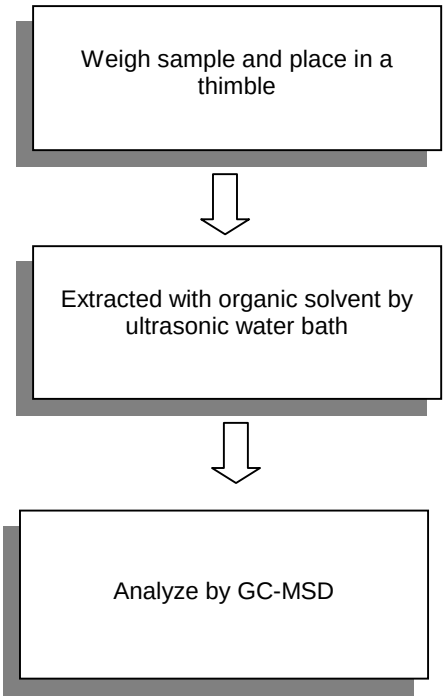
Tests Conducted
Measurement Flowchart:

Test For Phthalates Contents (CPSC-CH-C1001-09.3)



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To be continued

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Tests Conducted

5 HBCDD content

(Ⅰ)Test result summary：

Testing item	Result (ppm)
HBCDD (hexabromocyclododecane)	ND

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

(Ⅱ) Test method：

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

Date sample received： Mar.11, 2013
Testing period： Mar.11, 2013 to Mar.14, 2013

****

To be continued

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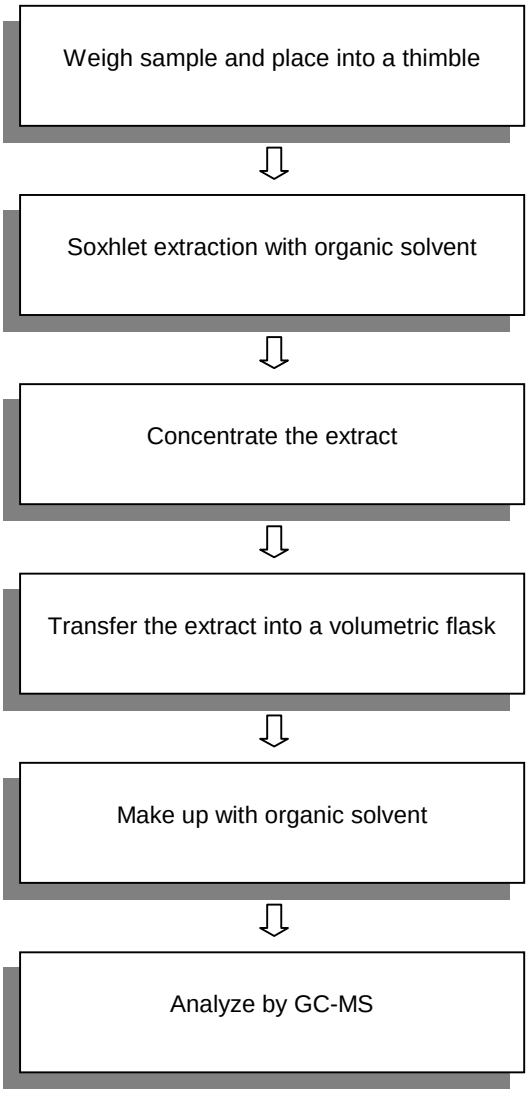
Tests Conducted

Measurement flowchart：

Test for HBCDD (hexabromocyclododecane) content



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Test Report Number： SHAH00369083

Tests Conducted

****

End of report

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TEST REPORT NUMBER: SHAH00315586

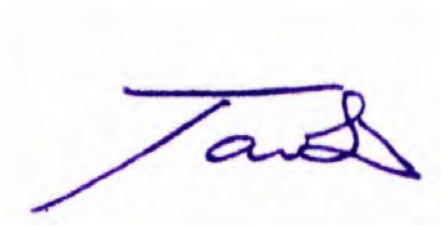
APPLICANT: LITTELFUSE,INC. DATE: MAY 15, 2012
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
One (1) submitted sample said to be **silver ink.**
Part Description : Ink-silver.
Part Number : 425639.
Date Sample Received : MAY.7, 2012.
Date Test Started : MAY.7, 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

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TEST REPORT NUMBER: SHAH00315586

TESTS CONDUCTED

1 PHTHALATE CONTENT TEST

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

TESTED COMPOUND	RESULT (%,W/W)	LIMIT(%,W/W) (MAX.)
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 & AMENDENT 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

2 PHTHALATE CONTENT TEST

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

	RESULT (%, w/w)	LIMIT (%, w/w) (MAX.)
DIBUTYL PHTHALATE (DBP)	ND	0.1
DI(2-ETHYL HEXYL) PHTHALATE (DEHP)	ND	0.1
BENZYL BUTYL PHTHALATE (BBP)	ND	0.1

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

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

****

TO BE CONTINUED

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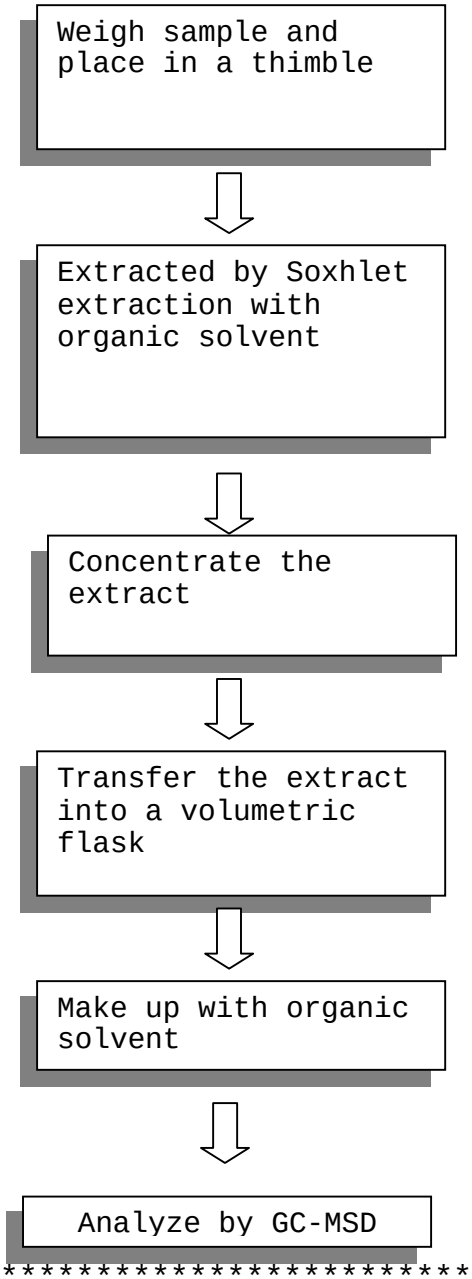
TEST REPORT NUMBER: SHAH00315586

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS



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TEST REPORT NUMBER: SHAH00315586

TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT(ppm)
HBCD (HEXABROMOCYCLODODECANE)	ND

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

(B) TEST METHOD :

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

****

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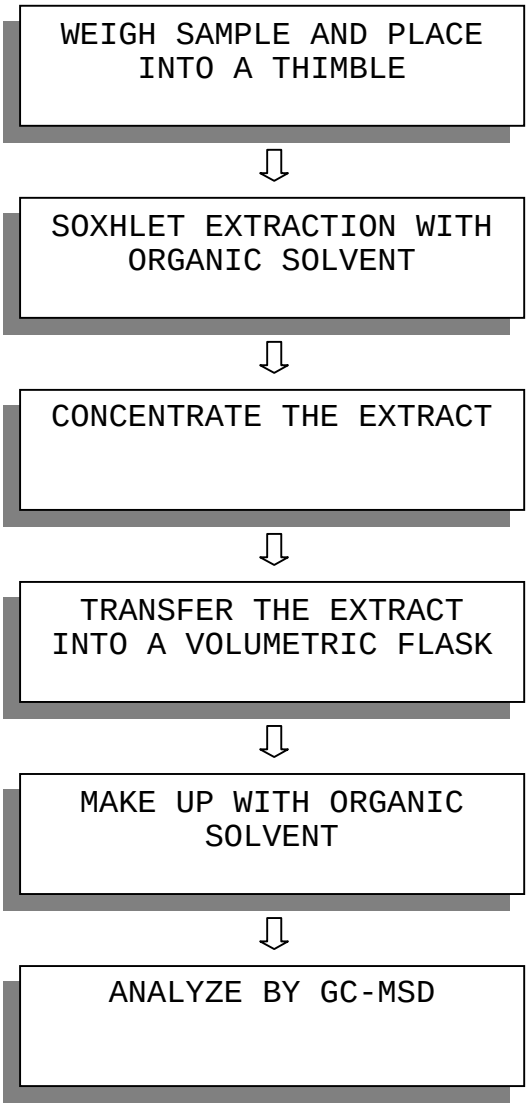
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TESTS CONDUCTED

4 (Ⅰ) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	130
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

(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

****

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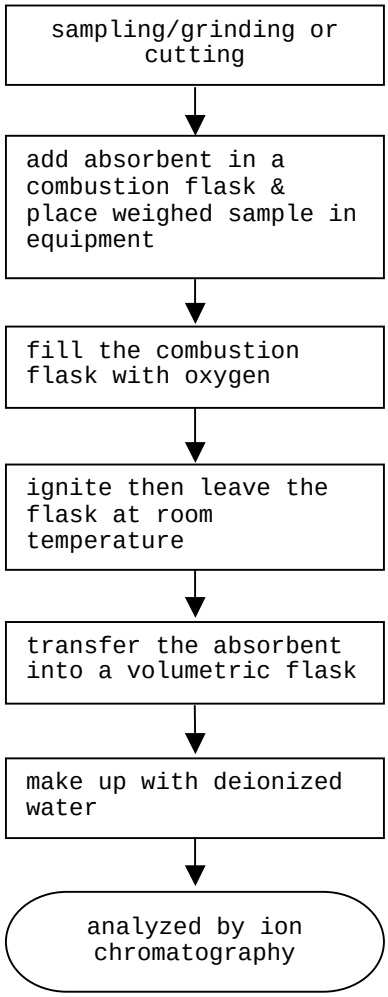
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard: EN 14582



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TESTS CONDUCTED

5 (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

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

Responsibility Of Chemist :Dent Fang / Ken He

****

TO BE CONTINUED

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TEST REPORT NUMBER: SHAH00315586

TESTS CONDUCTED

(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 Ehters (PBDEs)	0.1% (1000ppm)

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

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TEST REPORT NUMBER: SHAH00315586

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 analyte in sample

Date Sample Received : MAY 7, 2012
Testing Period : MAY 7, 2012 TO MAY 11, 2012

****

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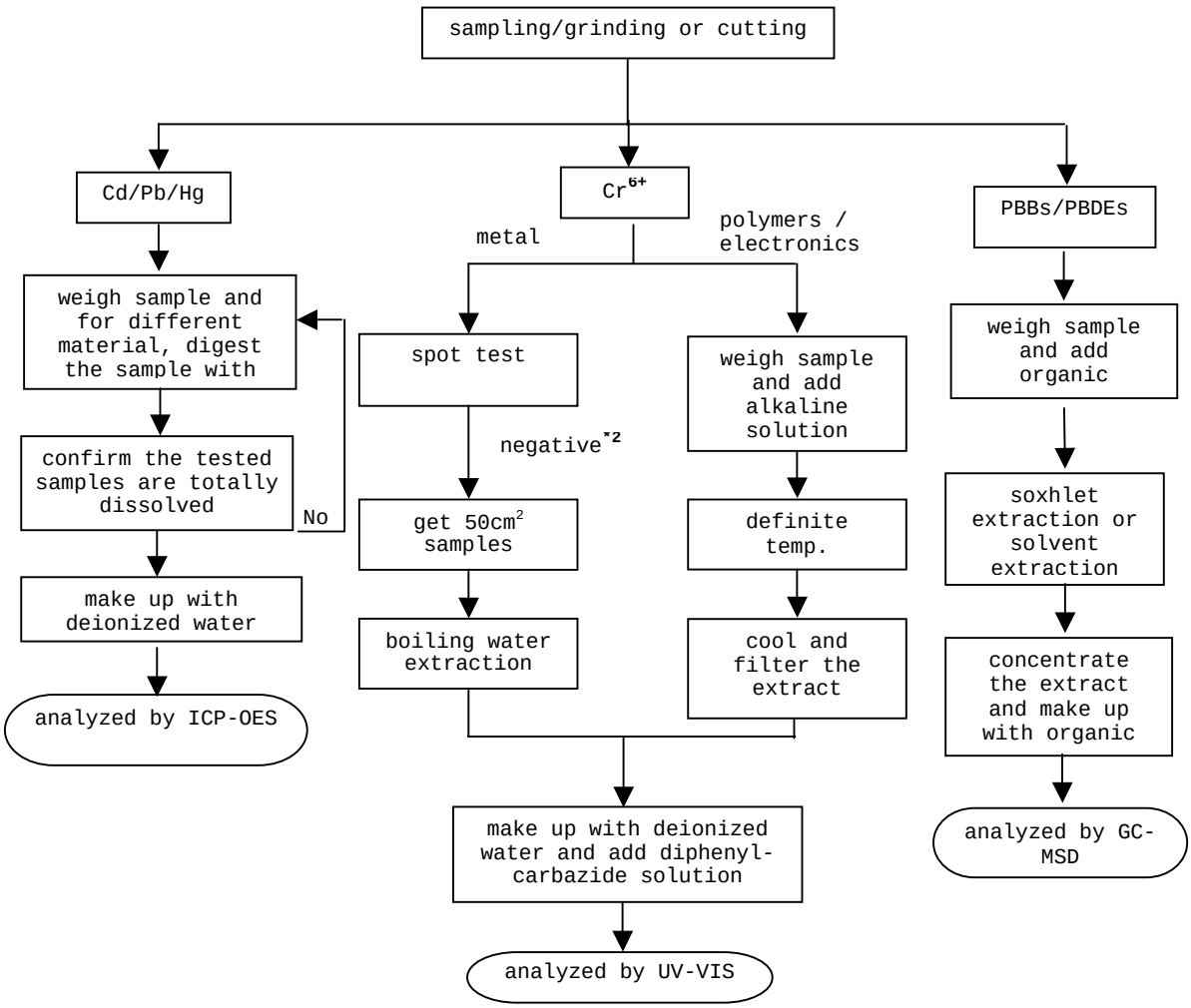
TEST REPORT NUMBER: SHAH00315586

TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

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



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TESTS CONDUCTED

REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO_3, HCl, HF, H_2O_2, H_3BO_3
Metals	HNO_3, HCl, HF
Electronics	HNO_3, HCl, H_2O_2, HBF_4

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

****

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TESTS CONDUCTED

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END OF REPORT

Table 2. Part Numbers for 216P-HF

Total Parts	Raw Material Description	Raw Material Part Number	Product Part Number
1	OVERCAP	934-078	0216001.MXR20P 0216002.MXR22P 0216004.MXR6P 0216005.MXR7P 021606.3MXR8P 02163.15MXR11P 021602.5MXR23P 021601.6MXR24P
2	OVERCAP	C030210	0216008.MXR9P 0216010.MXR10P
3	CAP	910-553	0216001.MXR20P 0216002.MXR22P 0216004.MXR6P 0216005.MXR7P 021606.3MXR8P 02163.15MXR11P 021602.5MXR23P 021601.6MXR24P
4	CAP	910-556	0216008.MXR9P 0216010.MXR10P
5	Solder	692539-002	0216001.MXR20P 0216002.MXR22P 0216004.MXR6P 0216005.MXR7P 021606.3MXR8P 0216008.MXR9P 0216010.MXR10P 02163.15MXR11P 021602.5MXR23P 021601.6MXR24P
6	Sand	091251	0216001.MXR20P 0216002.MXR22P 0216004.MXR6P 0216005.MXR7P 021606.3MXR8P 0216008.MXR9P 0216010.MXR10P 02163.15MXR11P 021602.5MXR23P 021601.6MXR24P
7	Wire	082XXX	0216001.MXR20P 0216002.MXR22P 0216004.MXR6P 0216005.MXR7P 021606.3MXR8P 0216008.MXR9P 0216010.MXR10P
8	Body	909-455	0216001.MXR20P 0216002.MXR22P 0216004.MXR6P 0216005.MXR7P 021606.3MXR8P 0216008.MXR9P 0216010.MXR10P 02163.15MXR11P 021602.5MXR23P 021601.6MXR24P
9	INK	425631	021601.6MXR24P
10	INK	425632	0216005.MXR7P
11	INK	425633	0216010.MXR10P 021602.5MXR23P
12	INK	425634	0216001.MXR20P
13	INK	425635	0216004.MXR6P
14	INK	425636	021606.3MXR8P
15	INK	425637	0216008.MXR9P
16	INK	425639	0216002.MXR22P
17	INK	425641	02163.15MXR11P
18	INK	425645	021602.5MXR23P 02163.15MXR11P 021601.6MXR24P