ICP Test Report Certification Packet

Company name: Littelfuse, Inc.

Product Series: Power Safe 'Dead Front' Fuse Holder

Product #: LPSMxxx, LPSCxxx, LPHVxxx
LPSMxxxID, LPSCxxxID, LPHVxxxID

Issue Date: July 01, 2013

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

Issued by: JENNY DINGLASAN

<Global EHS Specialist>

(3) Parts, sub-materials and unit parts

This document covers the Power Safe Dead Front Fuse Holder 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	N/A	DIN Adapter	3-8
2	N/A	Pressure Plate	3-8
3	N/A	Reinforcing Clip	3-8
4	N/A	Clip	3-8
5	N/A	Holder Main Side	3-8
6	N/A	Door	3-8
7	N/A	Solder Terminal	3-8
8	N/A	Spring	3-8
9	N/A	Resistor	3-8
10	N/A	Neon Lamps	3-8
11	N/A	Indicator Carrier	3-8
12	N/A	Solder Wire	3-8
13	N/A	Lens	3-8
14	N/A	Carrier Top	3-8
15	N/A	Holder cap	3-8
15	N/A	Connector Pincer	3-8
17	N/A	Handle Pin	3-8
18	N/A	Ink	3-8
19	MR8.574.055	Box Lug	9-13
20	MR8.906.045	Screw	14-18
21	N/A	DIN Adapter (including RoHS 2 & halogens)	19-27
22	N/A	Housing,Cover,Indicator Carrier,Carrier Top,Door (including RoHS 2 & halogens)	28-36
23	N/A	Colorant (including RoHS 2 & halogens)	37-45
24	N/A	Connector Pincer (including RoHS 2 & halogens)	46-54
25	N/A	Green Ink	55-67

CTI 华测检测

Integration Report

Report No.:RLNBE000108820001

Client :ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
Address :WEI 11 ROAD 261,ECONOMIC DEVELOPMENT ZONE,YUEQING ZHEJIANG CHINA

Integrated Samples Information

Sample Name :Fuse holder
Part No. :RT18M-32(X)、RT18M-32(X)-2P、RT18M-32(X)-3P、RT18T-32(X)、RT18T-32(X)-2P、RT18T-32(X)-3P, RT18M/QC-32、RT18M/QC-32-2P
Sample Received Date :Nov. 6, 2012
Completed Date :Nov. 9, 2012
Requirement :According to the client request, to combine the components test reports, the client should be responsible for the authenticity and validity of reports.

Conclusion :According to the reports submitted by clients, the contents of hazardous substances in sample not exceed the required limit of EU RoHS Directive 2011/65/EU*.

*=July 1, 2011, the EU Official Journal (OJ) released the directive 2011/65/EU which as a new version of RoHS Directive (2002/95/EC). The revised directive has entered into force on the twentieth day after its publication in the OJ.

Tested by Sha Chen Reviewed by Wei Miao

Approved by Chen Qian Date Nov. 9, 2012

Chen Qian
Approved Signatory

No. 13431487

Except marked as "CTI", the following test reports are submitted by other third-party test organizations:

No.	Report No.	Report Completed Date	Supplier
CTI			
2	RLNBE000092100001C	Jul. 26, 2012	YUEQING PUSITE STAMPING CO.,LTD.
7.2	RLNBE000107790002C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
8.1	RLNBE000107790004C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
8.2	RLNBE000107790001C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
9	RLNBE000107790007C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
10.1	RLNBE000107790010C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
10.2	RLNBE000107790003C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
11.4.2	RLNBE000107790003C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
11.6.1	RLNBE000107820001C	Nov. 2, 2012	SHANGHAI CHUANGDE OPTOELECTRONIC TECHNOLOGY CO.,LTD.
11.6.2	RLNBE000107820001C	Nov. 2, 2012	SHANGHAI CHUANGDE OPTOELECTRONIC TECHNOLOGY CO.,LTD.
12	RLNBE000107790006C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
13	RLNBE000107790005C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
14	RLNBE000107790008C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
15	RLNBE000107790009C	Nov. 2, 2012	ZHEJIANG MINGRONG ELECTRICAL PROTECTION CO.,LTD.
Other third-party organizations			
1	SHAEC1202116102	Mar 1, 2012	YIXING FANSHENG COPPER CO.,LTD.
3	SHAEC1212008505	Jul. 16, 2012	DSM ENGINEERING PLASTICS JIANGSU
4	SHAEC1212008505	Jul. 16, 2012	DSM ENGINEERING PLASTICS JIANGSU

No.	Report No.	Report Completed Date	Supplier
5	SHAEC1212008505	Jul. 16, 2012	DSM ENGINEERING PLASTICS JIANGSU
6	SHAEC1212008505	Jul. 16, 2012	DSM ENGINEERING PLASTICS JIANGSU
7.1	CANML1204017401	Apr. 13, 2012	BEKAERT XINYU METAL PRODUCTS CO.,LTD.
11.1	SHAEC1212008505	Jul. 16, 2012	DSM ENGINEERING PLASTICS JIANGSU
11.2	SHAEC1201581906	Feb. 21, 2012	YUEQING YUNXI SOLDER CO.,LTD.
11.3	SHAEC1201176206	Feb. 9, 2012	SAMSUNG PRECISION STAINLESS STEEL(PING HU)CO.,LTD.
11.4.1	SHAEC1201416609 A01	Feb. 28, 2012	YUEQING WANTAI COPPER CO.,LTD.
11.5.1	A001C120416038001-3	Apr. 19, 2012	WU HU KE YU ELECTRONICS CO.,LTD.
11.5.2	A001C120416038005-3	Apr. 19, 2012	WU HU KE YU ELECTRONICS CO.,LTD.

According to the reports and samples submitted by clients, to summarize the components datum as follows:

No.	Test Sample Name	Integration Sample Name	Tested Sample/Part Description
1	Brass Tube	Handle Pin	Golden metal
2	terminals	Box Lug	Metal with light plating
3	Akulon K-FKGS6/B KN.01.74(grey)	Holder Main Side	Grey solid pellet
4	Akulon K-FKGS6/B KN.01.74(grey)	Door	Grey solid pellet
5	Akulon K-FKGS6/B KN.01.74(grey)	Carrier Top	Grey solid pellet
6	Akulon K-FKGS6/B KN.01.74(grey)	Holder Cap Side	Grey solid pellet
7.1	Steel Wire	Reinforcing Clip	Silver-grey metal wire
7.2	Galvanized layer		Light blue plating
8.1	Steel	pressure plate	Silver-grey metal
8.2	Nickel coating		Silvery plating
9	Screw	Screw	Metal with light plating
10.1	copper	Clip	Cupreous metal
10.2	Silver plated layer		Silver-white plating
11.1	Akulon K-FKGS6/B KN.01.74(grey)	Indicator Carrier	Grey solid pellet
11.2	lead-free solder wire	solder wire	Silvery metal wire
11.3	Precision cold-rolled stainless steel strip	Indicator Top Spring & Indicator Bottom Spring	Silvery metal
11.4.1	H62 brass band(plate)	Solder Terminal	Yellow metal
11.4.2	Silver plated layer		Silver-white plating
11.5.1	LEAD WIRE	Resistor	Silvery metal
11.5.2	carbon film Resistor		(Mixed test) body
11.6.1	Pin	Glow lamps	Pin
11.6.2	Subject		LED light body
12	Methyl methacrylate-Butadiene-Styrene resin	ID Lens	Red plastic
13	Polyoxymethylene resin	Din Adapter	Red plastic
14	Polycarbonate resin	Connector Pincer	Red plastic
15	Printing Ink(green)	Printing Ink	Green ink

No.	Tested Sample/Part Description	Test Item (Unit: mg/kg)					
		Pb	Cd	Hg	Cr(VI)	PBBs	PBDEs
1	Golden metal	8	3	N.D.	Negative	N.D.	N.D.
2	Metal with light plating	N.D.	N.D.	N.D.	Negative	/	/
3	Grey solid pellet	12	N.D.	N.D.	N.D.	N.D.	N.D.
4	Grey solid pellet	12	N.D.	N.D.	N.D.	N.D.	N.D.
5	Grey solid pellet	12	N.D.	N.D.	N.D.	N.D.	N.D.
6	Grey solid pellet	12	N.D.	N.D.	N.D.	N.D.	N.D.
7.1	Silver-grey metal wire	N.D.	N.D.	N.D.	Negative	/	/
7.2	Light blue plating	N.D.	N.D.	N.D.	Negative	/	/
8.1	Silver-grey metal	N.D.	N.D.	N.D.	Negative	/	/
8.2	Silvery plating	N.D.	N.D.	N.D.	Negative	/	/
9	Metal with light plating	N.D.	N.D.	N.D.	Negative	/	/
10.1	Cupreous metal	19	N.D.	N.D.	Negative	/	/
10.2	Silver-white plating	N.D.	N.D.	N.D.	Negative	/	/
11.1	Grey solid pellet	12	N.D.	N.D.	N.D.	N.D.	N.D.
11.2	Silvery metal wire	136	N.D.	N.D.	Negative	N.D.	N.D.
11.3	Silvery metal	N.D.	N.D.	N.D.	Negative	N.D.	N.D.
11.4.1	Yellow metal	182	3	N.D.	Negative	/	/
11.4.2	Silver-white plating	N.D.	N.D.	N.D.	Negative	/	/
11.5.1	Silvery metal	N.D.	N.D.	N.D.	Negative	/	/
11.5.2	(Mixed test) body	17	N.D.	N.D.	N.D.	N.D.	N.D.
11.6.1	Pin	N.D.	N.D.	N.D.	Negative	/	/
11.6.2	LED light body	38	N.D.	N.D.	N.D.	N.D.	N.D.
12	Red plastic	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
13	Red plastic	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
14	Red plastic	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
15	Green ink	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
limit	**Pb ≤1000 mg/kg Cd≤100 mg/kg Hg≤1000 mg/kg Cr(VI)≤1000 mg/kg PBBs≤1000 mg/kg PBDEs≤1000 mg/kg**						

Note : -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

1. The integration report should not be equal to the testing report
2. Datum from integration report are completely provided by the applicant, Applicant is responsible for the legal obligation caused by the integration report.
3. If there is any discrepancy, CTI has the final explanation right.

Photo(s) of the Product(s)

Note: the Product is supplied by the client and for reference only

*** End of report ***

Test Report Number: SHAH00390008

Applicant: LITTELFUSE,INC. Date: JUN 24, 2013
LITTELFUSE,INC.
800 E. NORTHWEST HWY
Attn: A.DIVIETRO/D.UNTIEDT

Sample Description:
One(1) submitted sample said to be : **Box Lug.**
Item Name : Box Lug.
Part No. : MR8.574.055.

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Tests Conducted:
As requested by the applicant, for details refer to attached page(s).

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

Test Report Number： SHAH00390008

Tests Conducted

(Ⅰ) Test Result Summary：

Testing Item	Result (ppm)
Heavy Metal	(1)
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr^{6+}) content	ND

Testing Item	Result (ppm)
Heavy Metal	(2)
Cadmium (Cd) content/ plating	ND
Lead (Pb) content/ plating	ND
Mercury (Hg) content/ plating	ND
Chromium VI (Cr^{6+}) content (mg/kg With $50cm^2$)/ plating	ND

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

mg/kg with $50cm^2$ = milligram per kilogram with 50 square centimetre

Tested components：
(1)Black base.
(2)Silver color plating.

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 Ethers (PBDEs)	0.1% (1000ppm)

The above limits were quoted from RoHS Directive 2002/95/EC and amendment 2005/618/EC 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 B, by boiling water extraction and determined by UV-VIS Spectrophotometer.	0.02 mg/kg with $50cm^2$
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

Remark：Reporting limit = Quantitation limit of analyze in sample

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To be continued

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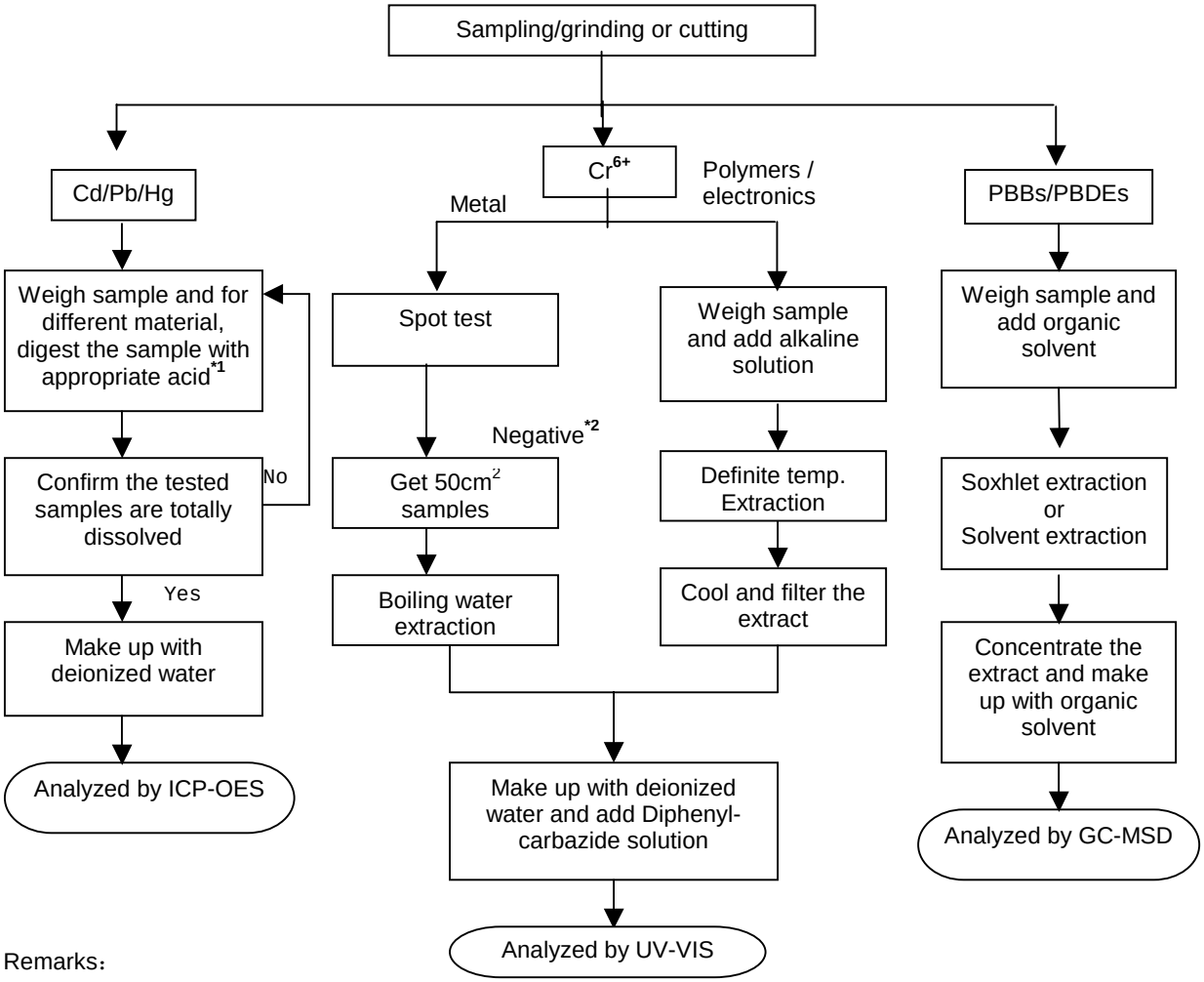
Tests Conducted

(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

(Ⅴ) Measurement Flowchart：

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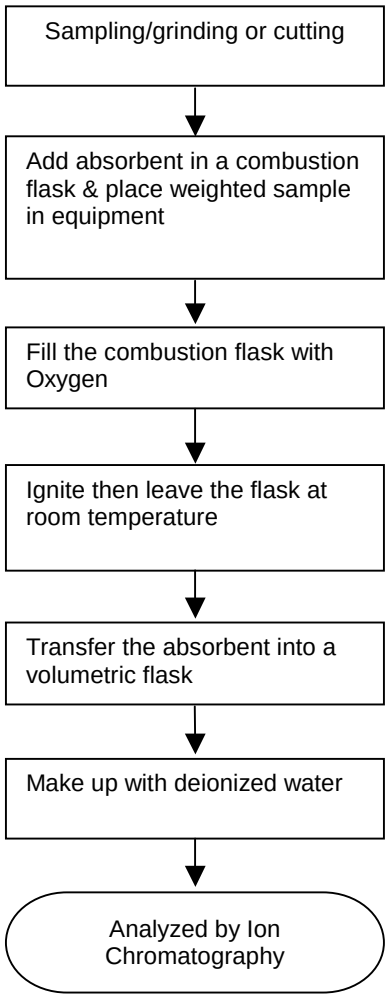
Tests Conducted
Test for Halogen content
Reference Standard： EN 14582



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To be continued

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

Test Report Number： SHAH00390008

Tests Conducted

Picture of sample

Date Sample Received：Jun.19, 2013

Testing Period：Jun.19, 2013 to Jun.21, 2013

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End of report

Intertek Testing Services Ltd., Shanghai
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Test Report Number: SHAH00390016

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

Date: JUN 24, 2013

Sample Description:

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

Item Name : Screw.
Part No. : MR8.906.045.

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Tests Conducted:

As requested by the applicant, for details refer to attached page(s).

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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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Test Report Number： SHAH00390016

Tests Conducted

(Ⅰ) Test Result Summary：

Testing Item	Result (ppm)
Heavy Metal	(1)
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr^{6+}) content	ND

Testing Item	Result (ppm)
Heavy Metal	(2)
Cadmium (Cd) content/ plating	ND
Lead (Pb) content/ plating	ND
Mercury (Hg) content/ plating	ND
Chromium VI (Cr^{6+}) content (mg/kg With $50cm^2$)/ plating	ND

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

mg/kg with $50cm^2$ = milligram per kilogram with 50 square centimetre

Tested components：
(1)Black base.
(2)Silver color plating.

Responsibility of Chemist: Dent Fang / Ken He

(Ⅱ) RoHS Requirement：

Restricted substances	Limits
Cadmium (Cd) Content	0.01% (100ppm)
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Chromium VI (Cr^{6+}) Content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)

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

(Ⅲ) Test Method：

Testing item	Testing method	Reporting limit
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Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr^{6+}) content	With reference to IEC 62321 edition 1.0:2008 in Annex B, by boiling water extraction and determined by UV-VIS Spectrophotometer.	0.02 mg/kg with $50cm^2$
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

Remark：Reporting limit = Quantitation limit of analyze in sample

****

To be continued

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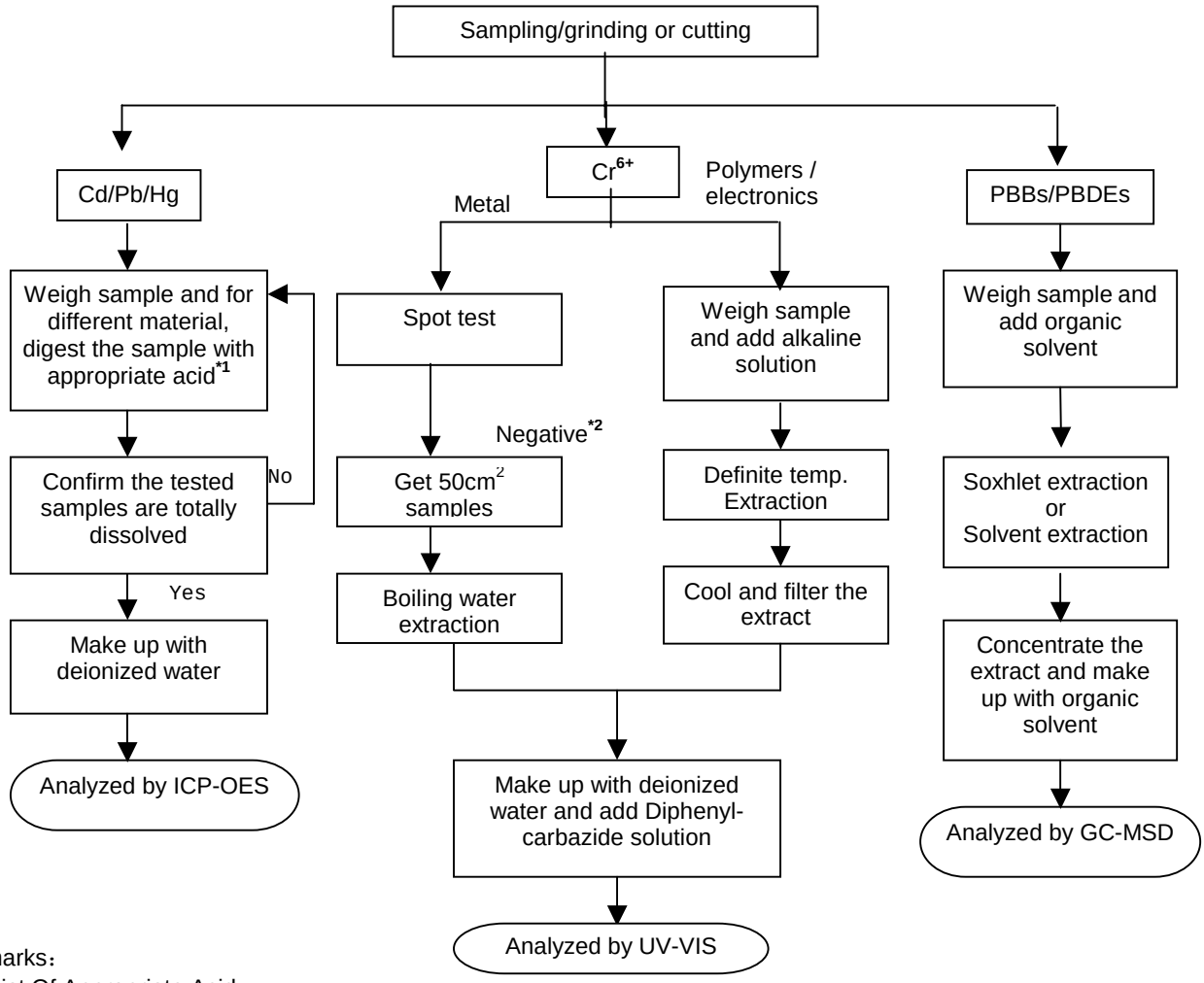
Tests Conducted
(Ⅳ) MEASUREMENT FLOWCHART:
Test for Cd/ Pb/ Hg/Cr (VI)/ PBBs/PBDEs contents
Reference standard: IEC 62321 edition 1.0:2008



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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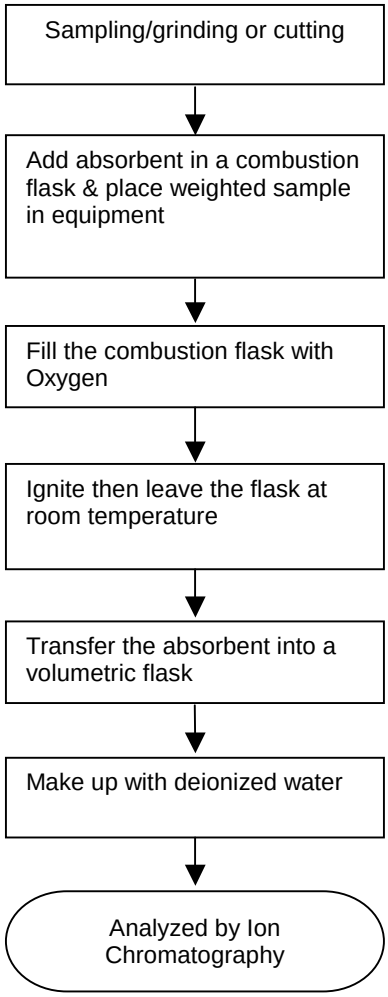
Tests Conducted

(Ⅴ) Measurement Flowchart：
Test for Halogen content
Reference Standard： EN 14582



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To be continued

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Test Report Number： SHAH00390016

Tests Conducted

Picture of sample

Date Sample Received：Jun.19, 2013

Testing Period：Jun.19, 2013 to Jun.21, 2013

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End of report

Intertek Testing Services Ltd., Shanghai
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www.intertek.com www.intertek.com.cn

Test Report Number : TWNC00260716

Applicant: Littelfuse Philippines Inc. Date : Jun 12, 2012
LIMA Technology Center, Lipa City,
Malvar, Batangas

Sample Description:
One (1) group of submitted samples said to be :
Part Description : DIN Adapter
Part Number : POMF 30-03
Date Sample Received : Jun 04, 2012
Date Test Started : Jun 06, 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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Number : TWNC00260716

Test Conducted

(Ⅰ) Test Result Summary :

Test Item	Result (ppm)
	White Plastic Pellets
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

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Number : TWNC00260716

Test Conducted

(Ⅰ) Test Result Summary :

Test Item	Result (ppm)
	White Plastic Pellets
Phthalates	
Di(2-ethylhexyl) Phthalate (DEHP)	ND
Dibutyl Phthalate (DBP)	ND
Benzyl Butyl Phthalate (BBP)	ND
Others	
Hexabromocyclododecane (HBCDD)	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 : Jun 04, 2012
Test Period : Jun 06, 2012 To Jun 11, 2012

(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 Conducted

(Ⅲ) Test Method:

Test Item	Test Method	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr^{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-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
Phthalates	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	50 ppm
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

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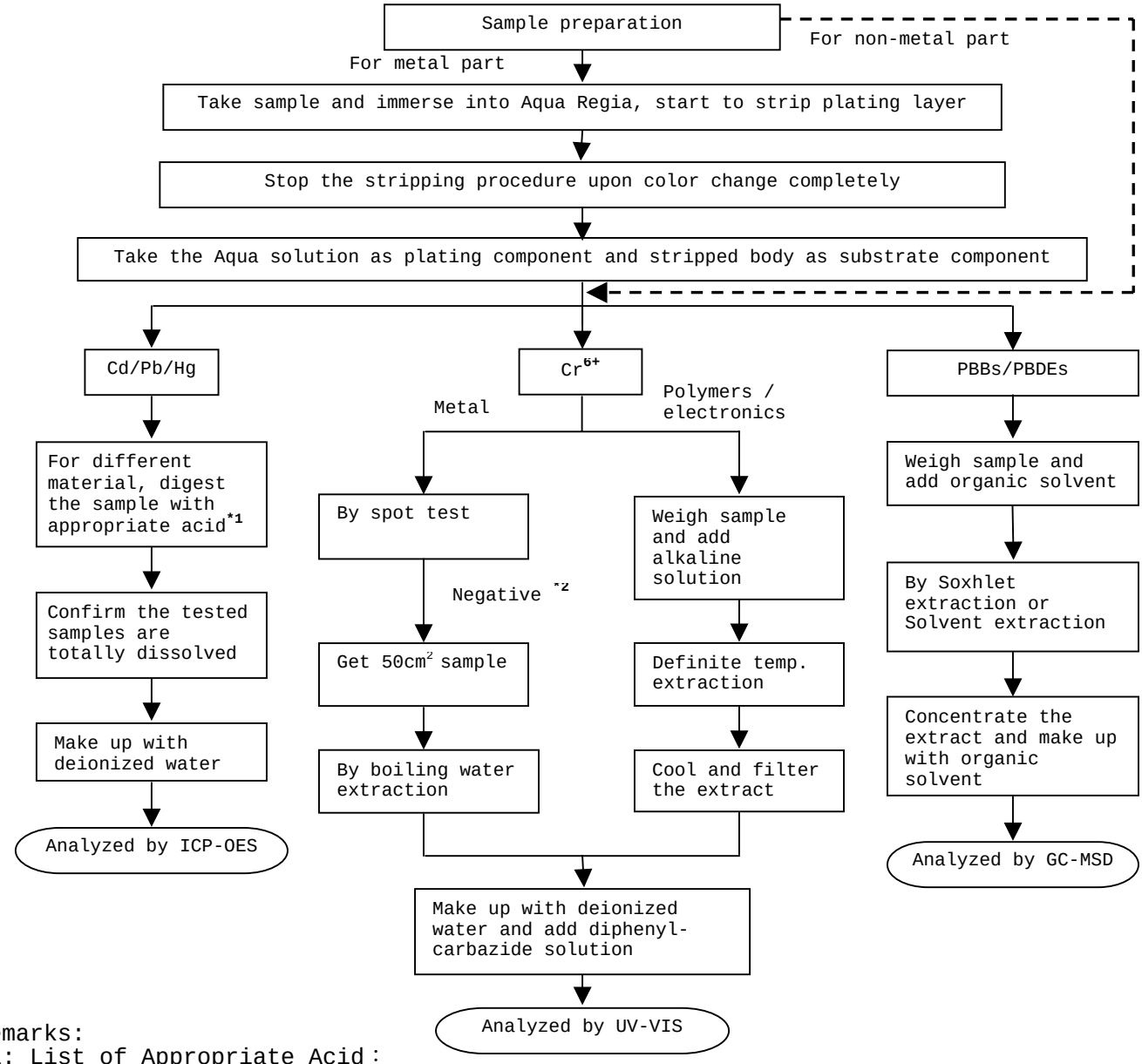
Test Conducted

(Ⅳ) Measurement Flowchart:

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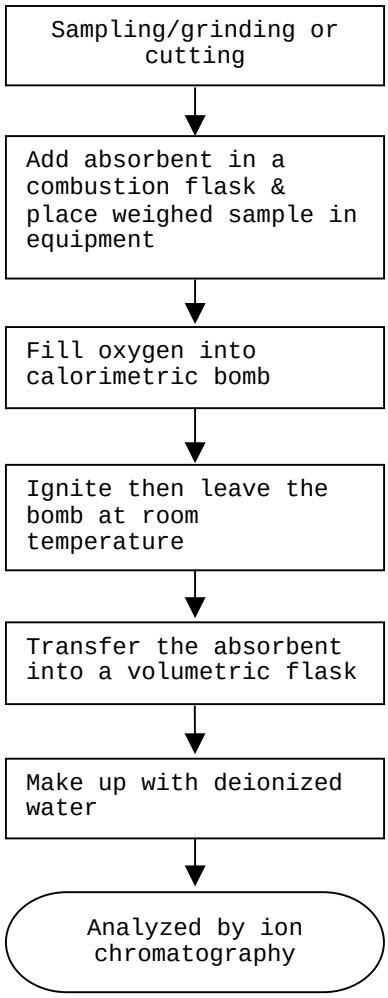
Test Conducted

(Ⅳ) Measurement Flowchart:

Test for Halogen Content
Reference Standard：EN 14582



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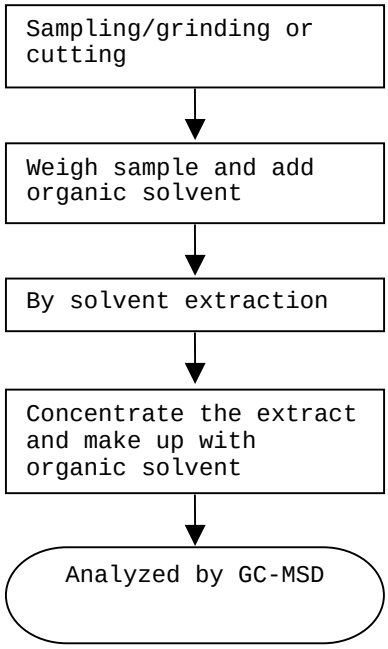
Test Conducted

(Ⅳ) Measurement Flowchart:

Test For Phthalates Contents
Reference Method: EN 14372: 2004



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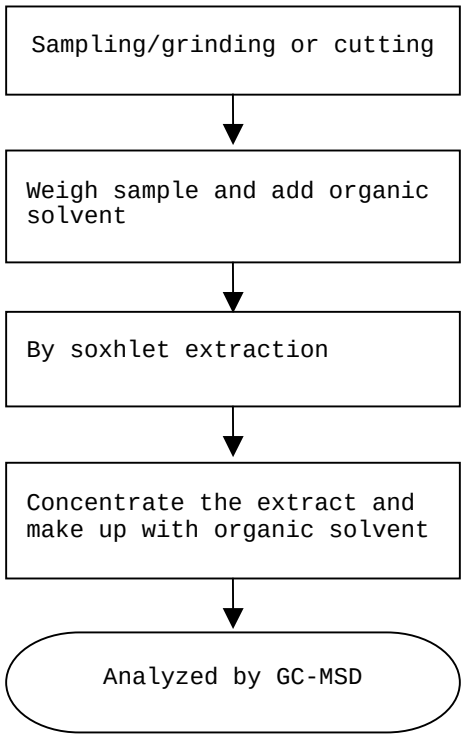
Test Conducted

(Ⅳ) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)
Reference Standard：USEPA 3540C



End of Report

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Number : TWNC00260716

Test Conducted

Photo

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Test Report Number : TWNC00260719

Applicant: Littelfuse Philippines Inc. Date : Jun 12, 2012
LIMA Technology Center, Lipa City,
Malvar, Batangas

Sample Description:
One (1) group of submitted samples said to be :
Part Description : Housing,Cover,Indicator Carrier,Carrier Top,Door
Part Number : DSM K-FKGSG
Date Sample Received : Jun 04, 2012
Date Test Started : Jun 06, 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

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Number : TWNC00260719

Test Conducted

(Ⅰ) Test Result Summary :

Test Item	Result (ppm)
	White Plastic Pellets
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	20
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)	864
Chlorine (Cl)	59
Bromine (Br)	41450
Iodine (I)	ND

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Number : TWNC00260719

Test Conducted

(Ⅰ) Test Result Summary :

Test Item	Result (ppm)
	White Plastic Pellets
Phthalates	
Di(2-ethylhexyl) Phthalate (DEHP)	ND
Dibutyl Phthalate (DBP)	ND
Benzyl Butyl Phthalate (BBP)	ND
Others	
Hexabromocyclododecane (HBCDD)	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 : Jun 04, 2012
Test Period : Jun 06, 2012 To Jun 11, 2012

(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 Conducted

(Ⅲ) Test Method:

Test Item	Test Method	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr^{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-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
Phthalates	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	50 ppm
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

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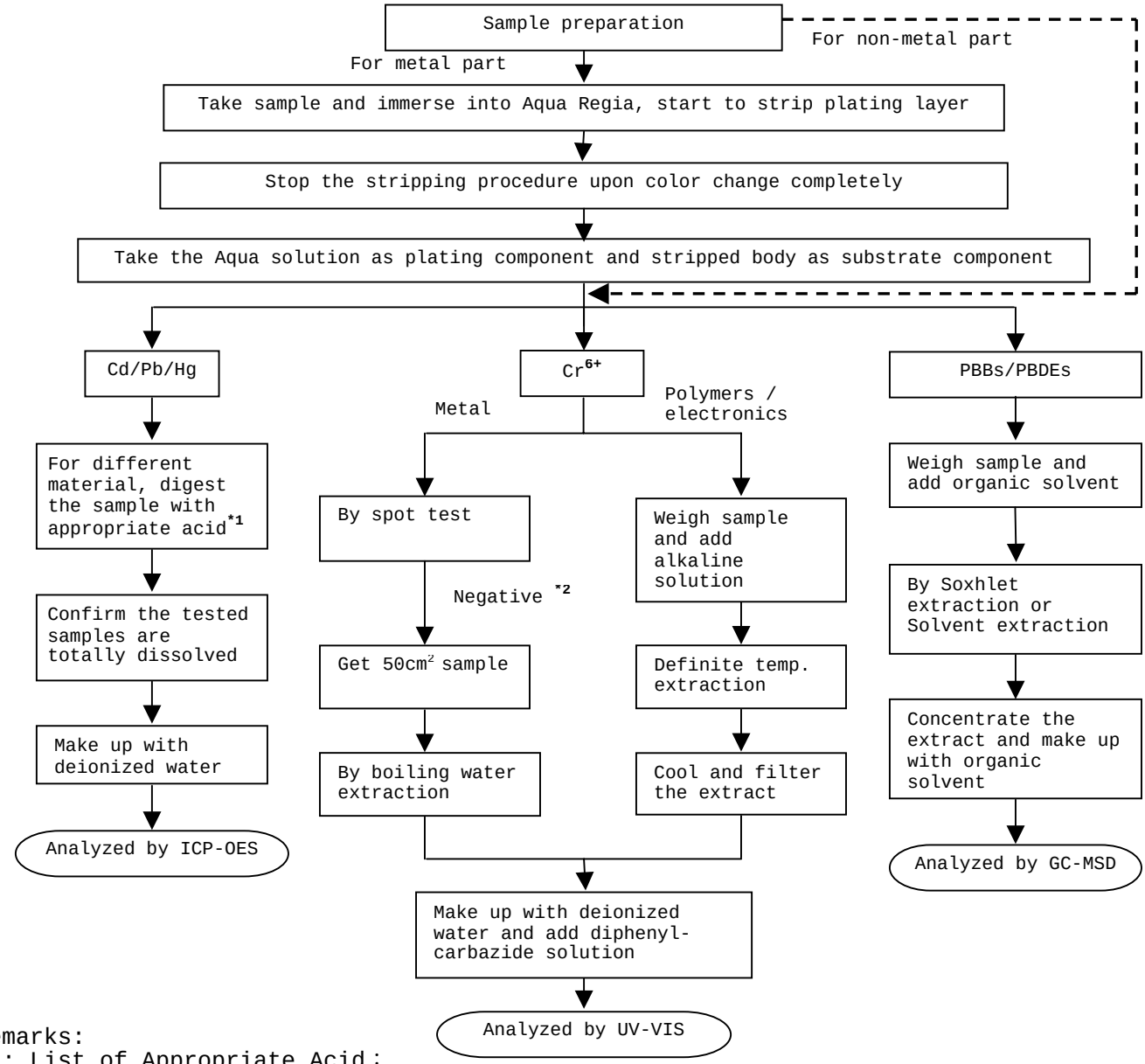
Number : TWNC00260719

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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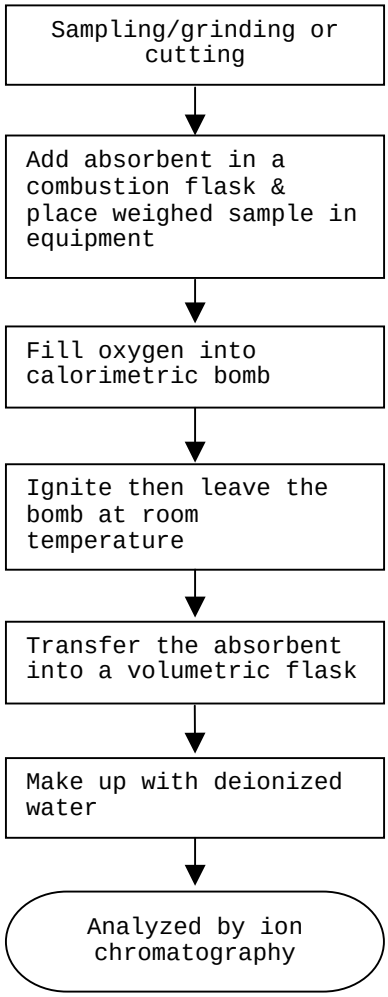
Test Conducted

(Ⅳ) Measurement Flowchart:

Test for Halogen Content
Reference Standard：EN 14582



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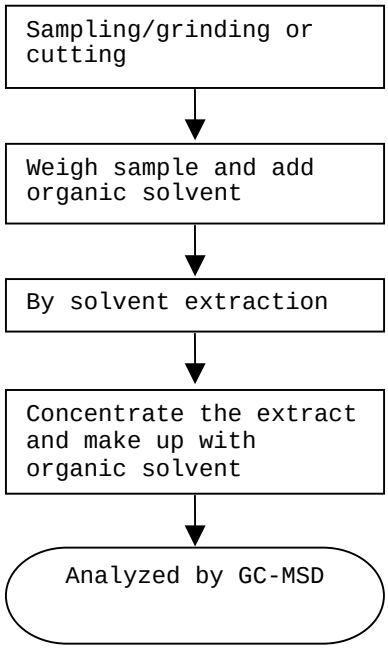
Test Conducted

(Ⅳ) Measurement Flowchart:

Test For Phthalates Contents
Reference Method: EN 14372: 2004



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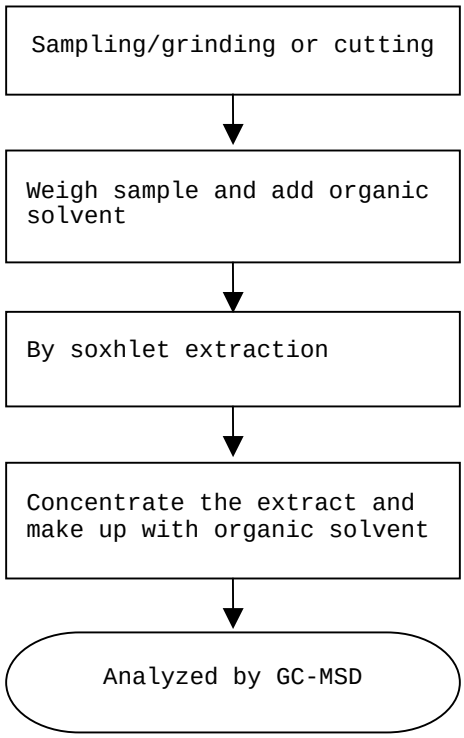
Test Conducted

(Ⅳ) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)
Reference Standard：USEPA 3540C



End of Report

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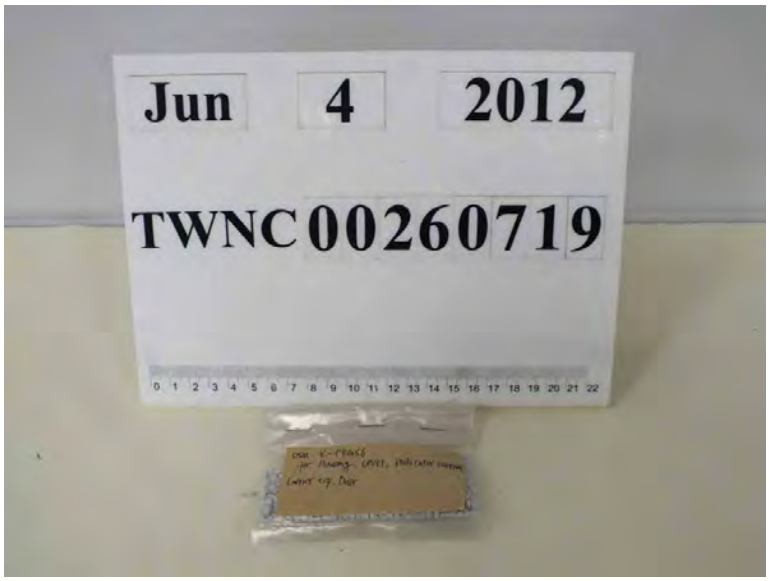
Number : TWNC00260719

Test Conducted

Photo



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Test Report Number : TWNC00260717

Applicant: Littelfuse Philippines Inc. Date : Jun 12, 2012
LIMA Technology Center, Lipa City,
Malvar, Batangas

Sample Description:
One (1) group of submitted samples said to be :
Part Description : Colorant
Date Sample Received : Jun 04, 2012
Date Test Started : Jun 06, 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

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Number : TWNC00260717

Test Conducted

(Ⅰ) Test Result Summary :

Test Item	Result (ppm)
	Red Plastic Pellets
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)	59
Chlorine (Cl)	3480
Bromine (Br)	249
Iodine (I)	ND

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Number : TWNC00260717

Test Conducted

(Ⅰ) Test Result Summary :

Test Item	Result (ppm)
	Red Plastic Pellets
Phthalates	
Di(2-ethylhexyl) Phthalate (DEHP)	ND
Dibutyl Phthalate (DBP)	ND
Benzyl Butyl Phthalate (BBP)	ND
Others	
Hexabromocyclododecane (HBCDD)	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 : Jun 04, 2012
Test Period : Jun 06, 2012 To Jun 11, 2012

(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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Number : TWNC00260717

Test Conducted

(Ⅲ) Test Method:

Test Item	Test Method	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr^{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-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
Phthalates	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	50 ppm
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

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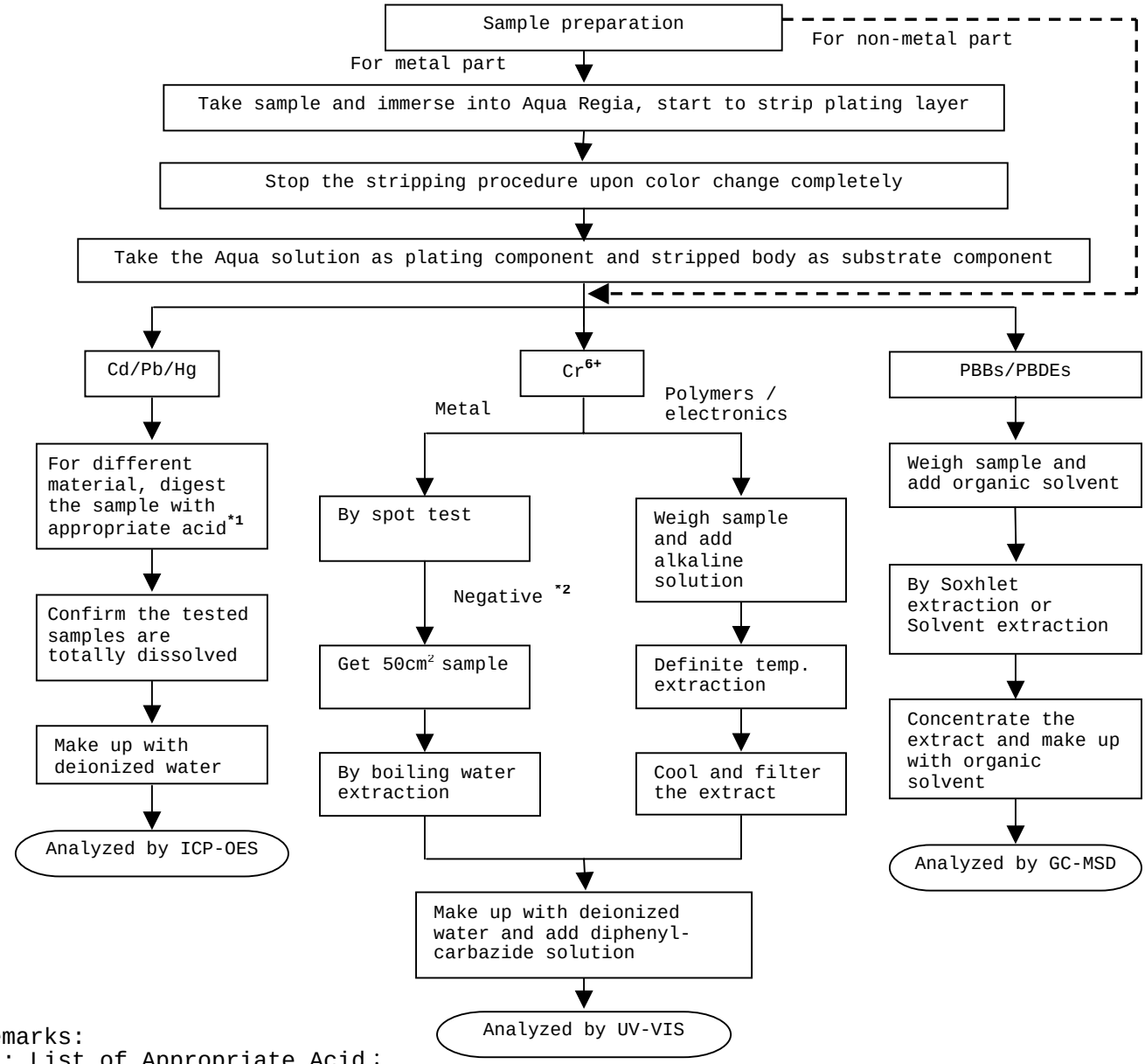
Number : TWNC00260717

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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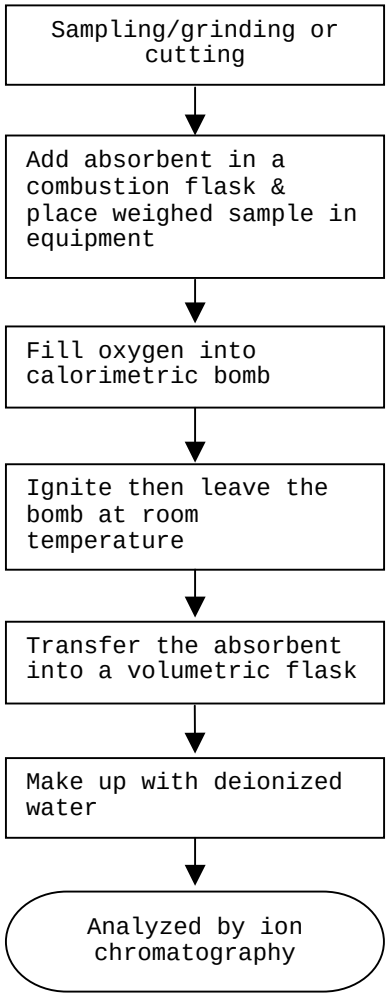
Test Conducted

(Ⅳ) Measurement Flowchart:

Test for Halogen Content
Reference Standard：EN 14582



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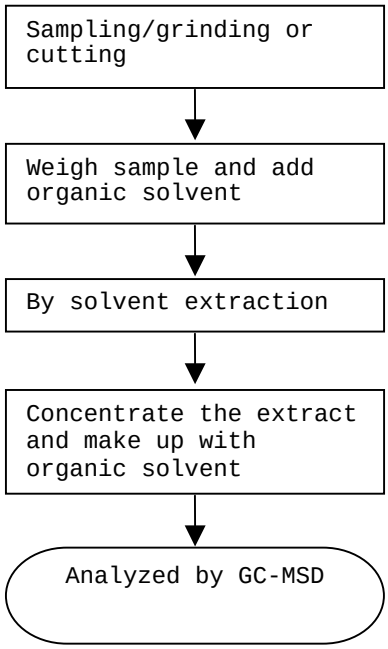
Test Conducted

(Ⅳ) Measurement Flowchart:

Test For Phthalates Contents
Reference Method: EN 14372: 2004



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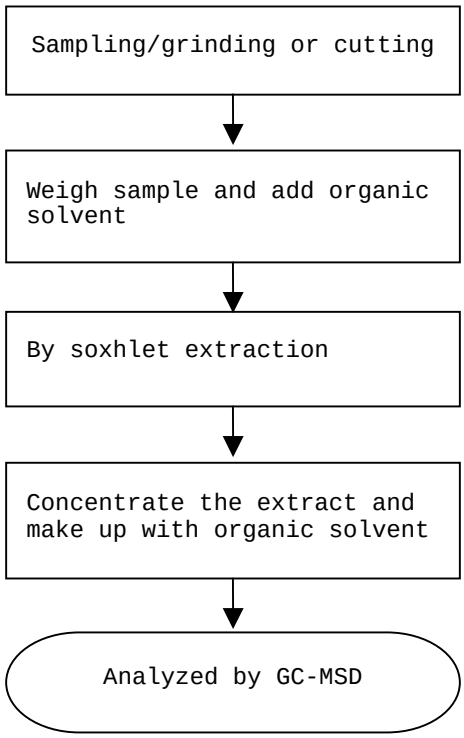
Test Conducted

(Ⅳ) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)
Reference Standard：USEPA 3540C



End of Report

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Number : TWNC00260717

Test Conducted

Photo

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Test Report Number : TWNC00260718

Applicant: Littelfuse Philippines Inc. Date : Jun 12, 2012
LIMA Technology Center, Lipa City,
Malvar, Batangas

Sample Description:
One (1) group of submitted samples said to be :
Part Description : Connector Pincer
Date Sample Received : Jun 04, 2012
Date Test Started : Jun 06, 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.
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Number : TWNC00260718

Test Conducted

(Ⅰ) Test Result Summary :

Test Item	Result (ppm)
	Red Plastic Pellets
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	20
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)	457
Chlorine (Cl)	627
Bromine (Br)	9902
Iodine (I)	ND

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Number : TWNC00260718

Test Conducted

(Ⅰ) Test Result Summary :

Test Item	Result (ppm)
	Red Plastic Pellets
Phthalates	
Di(2-ethylhexyl) Phthalate (DEHP)	ND
Dibutyl Phthalate (DBP)	ND
Benzyl Butyl Phthalate (BBP)	ND
Others	
Hexabromocyclododecane (HBCDD)	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 : Jun 04, 2012
Test Period : Jun 06, 2012 To Jun 11, 2012

(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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Number : TWNC00260718

Test Conducted

(Ⅲ) Test Method:

Test Item	Test Method	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr^{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-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
Phthalates	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	50 ppm
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample

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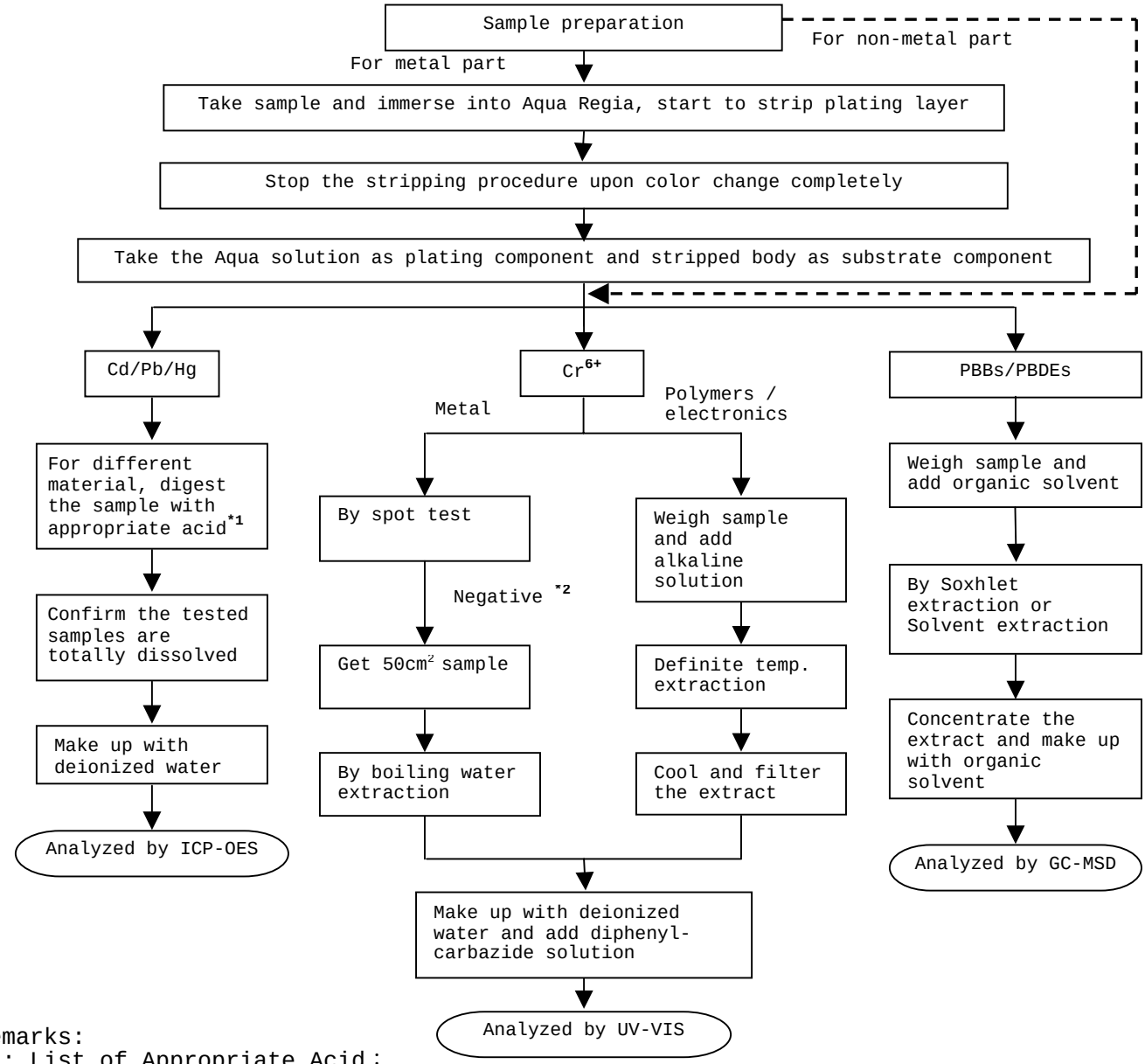
Number : TWNC00260718

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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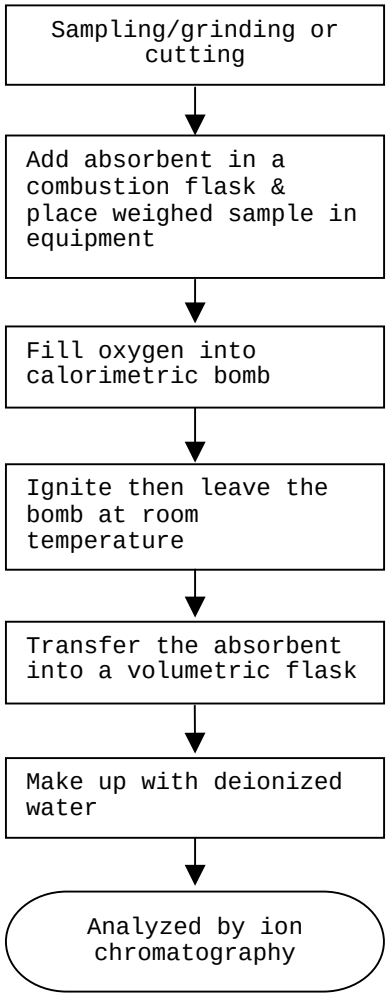
Test Conducted

(Ⅳ) Measurement Flowchart:

Test for Halogen Content
Reference Standard：EN 14582



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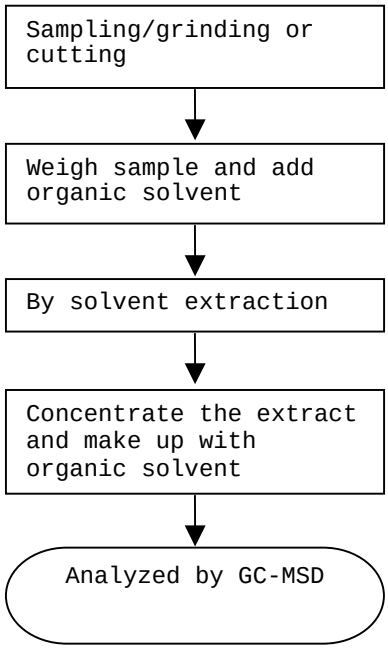
Test Conducted

(Ⅳ) Measurement Flowchart:

Test For Phthalates Contents
Reference Method: EN 14372: 2004



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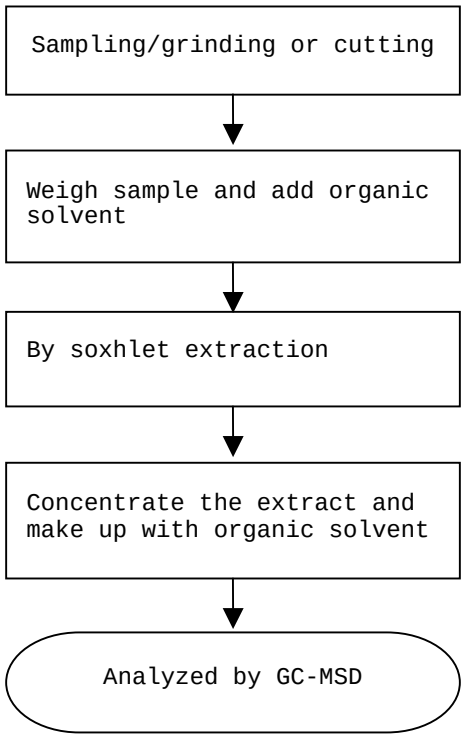
Test Conducted

(Ⅳ) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)
Reference Standard：USEPA 3540C



End of Report

Intertek Testing Services Taiwan Ltd.
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Number : TWNC00260718

Test Conducted

Photo

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Test Report Number： SHAH00373219

Applicant： LITTELFUSE,INC.
800 E. NORTHWEST HWY
Attn： K.BACILA / A.CESISTA JR.

Date： APR 09, 2013

Sample Description：
One(1) submitted sample said to be **Green ink.**
Item Name ： Ink.

****

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
Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233
上海天祥質量技術服務有限公司
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www.intertek.com www.intertek.com.cn

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

****

To be continued

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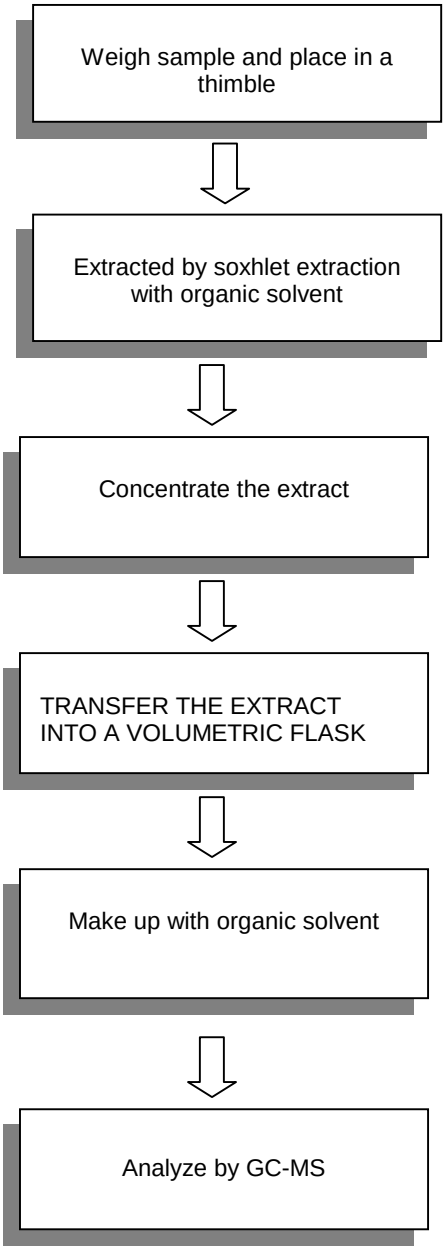
www.intertek.com www.intertek.com.cn

Tests Conducted

Measurement flowchart：

Test for phthalate content (For EN 14372)



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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)	>100000
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：Leaf Liu

(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

Intertek Testing Services Ltd., Shanghai
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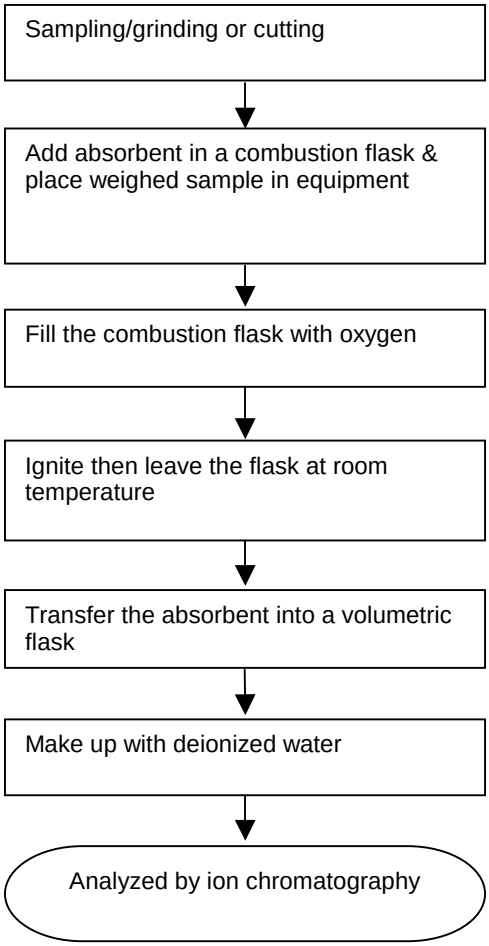
Tests Conducted

Test for halogen content
REFERENCE STANDARD：EN 14582



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To be continued

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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

(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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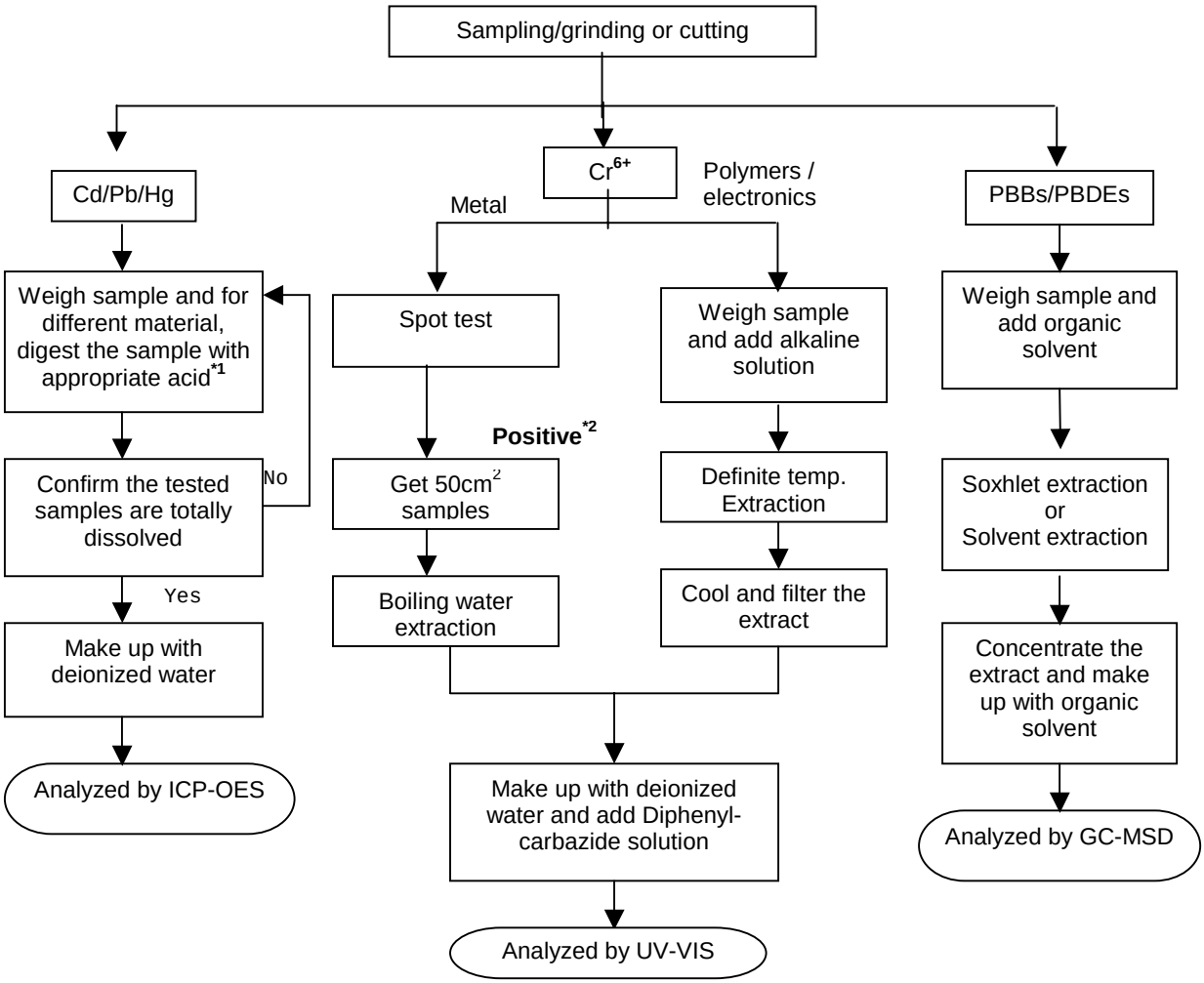
Tests Conducted

(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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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

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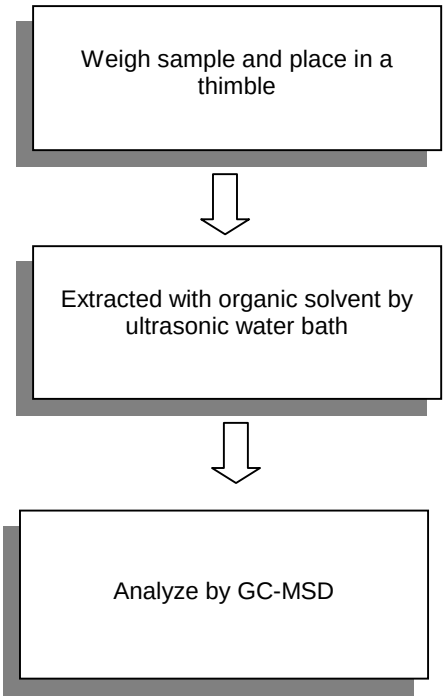
Tests Conducted
Measurement Flowchart:

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

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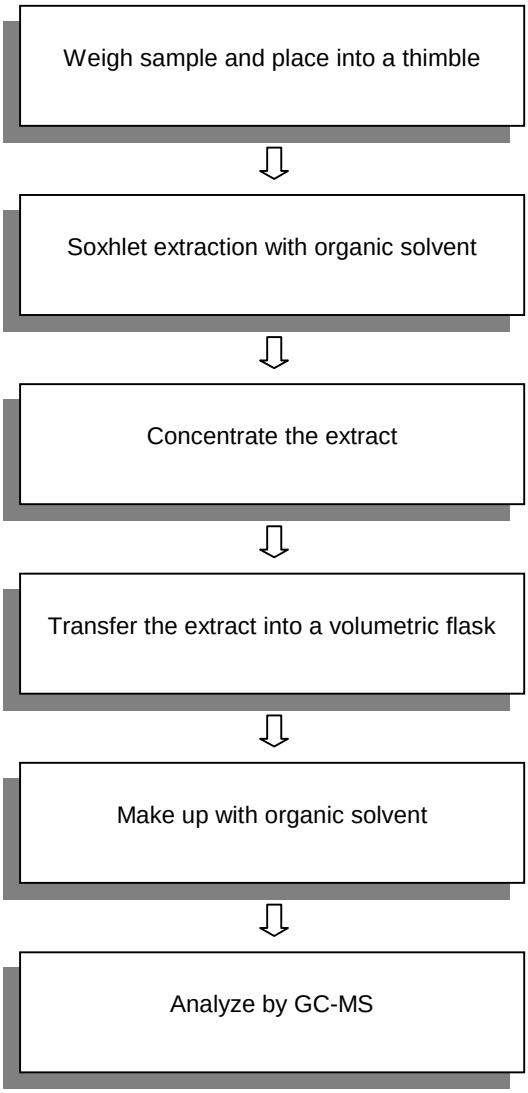
Tests Conducted

Measurement flowchart：

Test for HBCDD (hexabromocyclododecane) content



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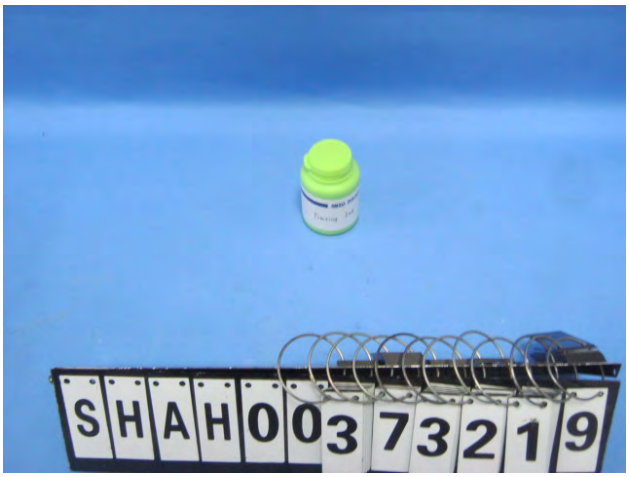
Test Report Number： SHAH00373219

Tests Conducted



Picture Of Sample

Date sample received：Apr.1, 2013

Testing period： Apr.1, 2013 to Apr.8, 2013

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End of report

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