ICP Test Report Certification Packet

Company name: Littelfuse, Inc.

Product Series: 5x20mm Fast-Acting Cartridge Fuse

Product #: 216xxxXESPP

Issue Date: September 10, 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 >

128- Parts, sub-materials and unit parts

This document covers the 5x20mm Fast-Acting Cartridge 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	934-073	Overcap (C030210)	3-6
2	909-449	Body	7-35
3	091251	Sand	36-42
4	082xxx	Element	43-47
5	692539-002	Solder	48-52
6	425631	Orange HF ink	53-65
7	425632	Red HF Ink	66-78
8	425633	Black HF Ink	79-91
9	425634	Deep yellow HF ink	92-104
10	425635	Blue HF ink	105-117
11	425636	Brown HF ink	118-130
12	425637	Green HF Ink	131-143
13	425639	Silver HF ink	144-156
14	425641	Violet HF ink	157-169
15	425900	Orange ink	170-180
16	425901	Red ink	181-191
17	425902	Black ink	192-202
18	425903	Yellow ink	203-213
19	425904	Blue ink	214-224
20	425906	Brown ink	225-235
21	425907	Green ink	236-246
22	425909	Grey ink	247-257
23	425911	Violet ink	258-268

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

Weigh the sample into a vessel. → Add the digestion solution; the vessel is heated until the sample has been dissolved → Add H_2O_2 until the sample is clear → Cooling the vessel, filter; washed and filled to the mark with distilled water. → Tested by ICP-OES → Report

2. To Determine Mercury Content: (Metal substrate)

Tested by: Condy

Weigh the sample into a vessel. → Add the digestion solution, close the microwave vessel. → The sample is digested in the microwave oven following a specific decomposition program. → Cooling the vessel, filter; washed and filled to the mark with distilled water. → Tested by ICP-OES → Report

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

Tested by: Danal

Take the (50±5) cm^2 sample in the beaker. → Heat 50 mL of DI water in the beaker to boiling for 10 → Remove the sample, and cool the beaker to room temperature, and do the color reaction → Test the sample solution and the 0.02 mg/kg standard solution by UV-VIS. → Report

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

Tested by: Condy

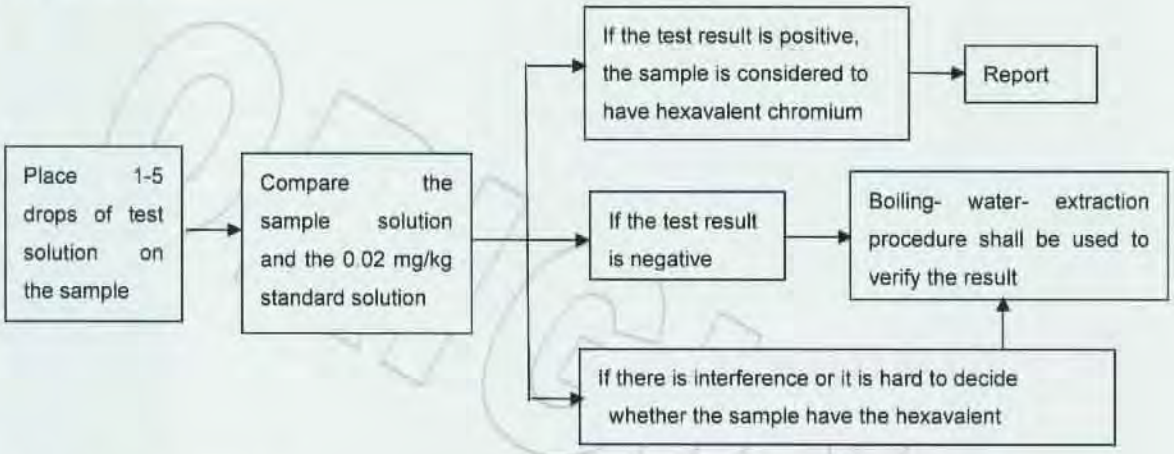
Weigh the plating-out sample → Cooling, filter; washed and filled to the mark with DI water. → Tested by Instrument → Report

TEST REPORT

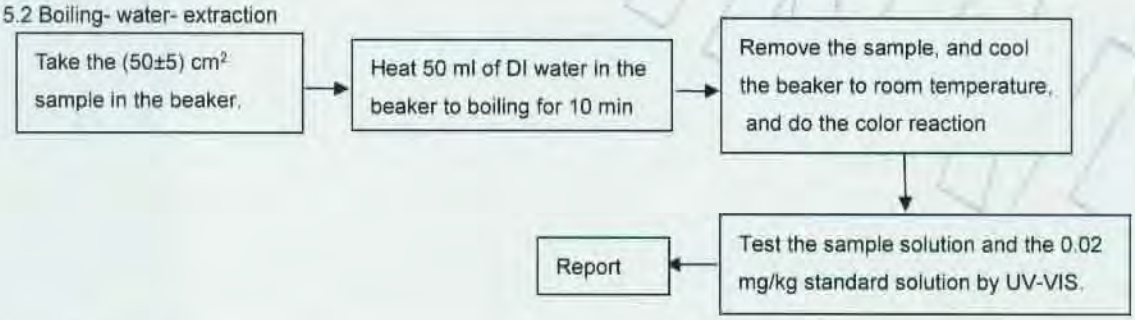
5. To Determine Hexavalent Chromium Content in colorless and colored chromate coating on metals: (Plating)

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);

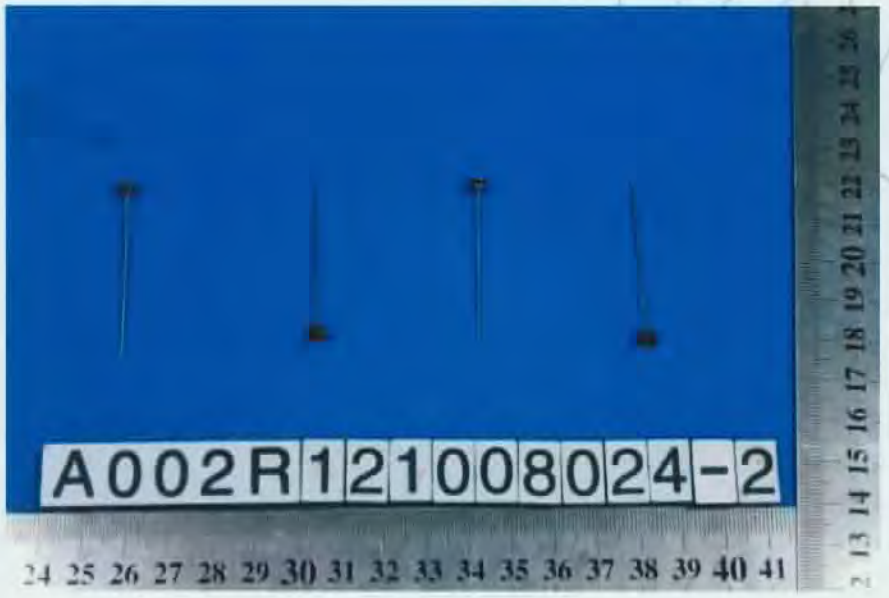
Uncertain= can not verify whether the sample have Hexavalent Chromium by spot-test.

(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

SGS

Signature valid
For Question
Please Contact with SGS
www.tw.sgs.com

Test Report

No. : CE/2013/13191 Date : 2013/01/21 Page : 1 of 29

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GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

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

Sample Description	:	CERAMIC
Style/Item No.	:	C610
Sample Receiving Date	:	2013/1/14
Testing Period	:	2013/1/14 TO 2013/01/21

==========

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

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

SGS TAIWAN LTD

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

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Test Result(s)

PART NAME No.1 : CREAM CERAMIC

Test Item(s)	Unit	Method	MDL	Result No.1	Limit
Cadmium (Cd)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.	100
Lead (Pb)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	204	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.	1000
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.	1000
BBP (Benzyl butyl phthalate) (CAS No.: 85-68-7)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.	-
DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.	-
DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.	-
PFOA (CAS No.: 335-67-1)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.	-
Polychlorinated Biphenyls (PCBs) (CAS No.: 1336-36-3)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.5	n.d.	-

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Test Item(s)	Unit	Method	MDL	Result No.1	Limit
Polychlorinated Terphenyls (PCTs)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.5	n.d.	-
Polychlorinated Naphthalene (PCNs)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	5	n.d.	-
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (CAS No.: 85535-84-8)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	100	n.d.	-
PVC	**	Analysis was performed by FTIR and FLAME Test.	-	Negative	-
Formaldehyde (CAS No.: 50-00-0)	mg/kg	With reference to ISO 17226-1(2008). Analysis was performed by HPLC/DAD.	3	n.d.	-
Monomethyl dibromodiphenyl methane (DBBT)	mg/kg	With reference to US EPA 8270D method. Analysis was performed by GC/MS.	0.5	n.d.	-
Monomethyl dichlorodiphenyl methane (Ugilec121)	mg/kg	With reference to US EPA 8270D method. Analysis was performed by GC/MS.	0.5	n.d.	-
Monomethyl tetrachlorodiphenyl methane (Ugilec141)	mg/kg	With reference to US EPA 8270D method. Analysis was performed by GC/MS.	0.5	n.d.	-
Halogen					
Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.	-
Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)	mg/kg		50	n.d.	-
Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg		50	n.d.	-
Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg		50	n.d.	-
Organic-tin compounds					
Tributyl Tin (TBT)	mg/kg	With reference to DIN 38407-13. Analysis was performed by GC/FPD.	0.03	n.d.	-
Triphenyl Tin (TphT)	mg/kg		0.03	n.d.	-

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Test Item(s)	Unit	Method	MDL	Result No.1	Limit
Asbestos					
Actinolite (CAS No.: 77536-66-4)	%	With reference to EPA 600/R-93/116 method. Analysis was performed by Stereo Microscope (SM), Dispersion Staining Polarized Light Microscope (DS-PLM) and X-ray Diffraction Spectrometer (XRD).	-	Negative	-
Amosite (CAS No.: 12172-73-5)	%		-	Negative	-
Anthophyllite (CAS No.: 77536-67-5)	%		-	Negative	-
Chrysotile (CAS No.: 12001-29-5)	%		-	Negative	-
Crocidolite (CAS No.: 12001-28-4)	%		-	Negative	-
Tremolite (CAS No.: 77536-68-6)	%		-	Negative	-
AZO					
1): 4-AMINODIPHENYL (CAS No.: 92-67-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
2): BENZIDINE (CAS No.: 92-87-5)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
3): 4-CHLORO-O-TOLUIDINE (CAS No.: 95-69-2)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
4): 2-NAPHTHYLAMINE (CAS No.: 91-59-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
5): O-AMINOAZOTOLUENE (CAS No.: 97-56-3)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
6): 2-AMINO-4-NITROTOLUENE (CAS No.: 99-55-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
7): P-CHLOROANILINE (CAS No.: 106-47-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
8): 2,4-DIAMINOANISOLE (CAS No.: 615-05-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
9): 4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 101-77-9)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
10): 3,3'-DICHLOROBENZIDINE (CAS No.: 91-94-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
11): 3,3'-DIMETHOXYBENZIDINE (CAS No.: 119-90-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
12): 3,3'-DIMETHYLBENZIDINE (CAS No.: 119-93-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-

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Test Item(s)	Unit	Method	MDL	Result No.1	Limit
13): 3,3'-DIMETHYL-4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 838-88-0)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
14): P-CRESIDINE (2-METHOXY-5-METHYLANILINE) (CAS No.: 120-71-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
15): 4,4'-METHYLENE-BIS- (2-CHLOROANILINE) (CAS No.: 101-14-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
16): 4,4'-OXYDIANILINE (CAS No.: 101-80-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
17): 4,4'-THIODIANILINE (CAS No.: 139-65-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
18): O-TOLUIDINE (CAS No.: 95-53-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
19): 2,4-TOLUYLENEDIAMINE (CAS No.: 95-80-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
20): 2,4,5-TRIMETHYLANILINE (CAS No.: 137-17-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
21): O-ANISIDINE (CAS No.: 90-04-0)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
22): P-AMINOAZOBENZENE (CAS No.: 60-09-3)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
23): 2,4-XYLIDINE (CAS No.: 95-68-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
24): 2,6-XYLIDINE (CAS No.: 87-62-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.	-
CFC's (Chlorofluorocarbons)					
Group I					
Chlorofluorocarbon-11 (CAS No.: 75-69-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-12 (CAS No.: 75-71-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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Test Item(s)	Unit	Method	MDL	Result No.1	Limit
Chlorofluorocarbon-113 (CAS No.: 76-13-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-114 (CAS No.: 76-14-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-115 (CAS No.: 76-15-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Group III					
Chlorofluorocarbon-13 (CAS No.: 75-72-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-111 (CAS No.: 354-56-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-112 (CAS No.: 76-12-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-211 (CAS No.: 422-78-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-212 (CAS No.: 3182-26-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-213 (CAS No.: 2354-06-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-214 (CAS No.: 29255-31-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-215 (CAS No.: 4259-43-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

Test Item(s)	Unit	Method	MDL	Result No.1	Limit
Chlorofluorocarbon-216 (CAS No.: 661-97-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-217 (CAS No.: 422-86-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFCs (Hydrochlorofluorocarbons)					
HCFC-21 (CAS No.: 75-43-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-22 (CAS No.: 75-45-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-31 (CAS No.: 593-70-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-121 (CAS No.: 354-14-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-122 (CAS No.: 354-21-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-123 (CAS No.: 306-83-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-124 (CAS No.: 2837-89-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-131 (CAS No.: 359-28-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-132b (CAS No.: 1649-08-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

Test Item(s)	Unit	Method	MDL	Result No.1	Limit
HCFC-133a (CAS No.: 75-88-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-141b (CAS No.: 1717-00-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-142b (CAS No.: 75-68-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-221 (CAS No.: 422-26-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-222 (CAS No.: 422-49-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-223 (CAS No.: 422-52-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-224 (CAS No.: 422-54-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-225ca (CAS No.: 422-56-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-225cb (CAS No.: 507-55-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-226 (CAS No.: 431-87-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-231 (CAS No.: 421-94-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-232 (CAS No.: 460-89-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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Test Item(s)	Unit	Method	MDL	Result No.1	Limit
HCFC-233 (CAS No.: 7125-84-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-234 (CAS No.: 425-94-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-235 (CAS No.: 460-92-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-241 (CAS No.: 666-27-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-242 (CAS No.: 460-63-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-243 (CAS No.: 460-69-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-244	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-251 (CAS No.: 421-41-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-252 (CAS No.: 819-00-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-253 (CAS No.: 460-35-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-261 (CAS No.: 420-97-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-262 (CAS No.: 421-02-03)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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Test Item(s)	Unit	Method	MDL	Result No.1	Limit
HCFC-271 (CAS No.: 430-55-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Halons					
Halon-1211 (CAS No.: 353-59-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Halon-1301 (CAS No.: 75-63-8)	mg/kg		1	n.d.	-
Halon-2402 (CAS No.: 124-73-2)	mg/kg		1	n.d.	-
CHCs (Chlorinate hydrocarbon)					
1,1,1,2-Tetrachloroethane (CAS No.: 630-20-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1,1-Trichloroethane (CAS No.: 71-55-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1,2,2-Tetrachloroethane (CAS No.: 79-34-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1,2-Trichloroethane (CAS No.: 79-00-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1-Dichloroethane (CAS No.: 75-34-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1-Dichloroethene (CAS No.: 75-35-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,1-Dichloropropene (CAS No.: 563-58-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,2,3-Trichloropropane (CAS No.: 96-18-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,2-Dichloroethane (CAS No.: 107-06-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

Test Item(s)	Unit	Method	MDL	Result No.1	Limit
1,2-Dichloropropane (CAS No.: 78-87-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
1,3-Dichloropropane (CAS No.: 142-28-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
2,2-Dichloropropane (CAS No.: 594-20-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Carbon tetrachloride (CAS No.: 56-23-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chloroethane (CAS No.: 75-00-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chloroform (CAS No.: 67-66-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Chloromethane (CAS No.: 74-87-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
cis-1,2-Dichloroethene (CAS No.: 156-59-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
cis-1,3-Dichloropropene (CAS No.: 10061-01-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Hexachlorobutadiene (CAS No.: 87-68-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Methylene Chloride (CAS No.: 75-09-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Tetrachloroethene (CAS No.: 127-18-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-

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Test Item(s)	Unit	Method	MDL	Result No.1	Limit
trans-1,2-Dichloroethene (CAS No.: 156-60-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
trans-1,3-Dichloropropene (CAS No.: 10061-02-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Trichloroethylene (CAS No.: 79-01-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.	-
Sum of PBBs	mg/kg	With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.	1000
Monobromobiphenyl	mg/kg		5	n.d.	-
Dibromobiphenyl	mg/kg		5	n.d.	-
Tribromobiphenyl	mg/kg		5	n.d.	-
Tetrabromobiphenyl	mg/kg		5	n.d.	-
Pentabromobiphenyl	mg/kg		5	n.d.	-
Hexabromobiphenyl	mg/kg		5	n.d.	-
Heptabromobiphenyl	mg/kg		5	n.d.	-
Octabromobiphenyl	mg/kg		5	n.d.	-
Nonabromobiphenyl	mg/kg		5	n.d.	-
Decabromobiphenyl	mg/kg		5	n.d.	-
Sum of PBDEs	mg/kg		-	n.d.	1000
Monobromodiphenyl ether	mg/kg		5	n.d.	-
Dibromodiphenyl ether	mg/kg		5	n.d.	-
Tribromodiphenyl ether	mg/kg		5	n.d.	-
Tetrabromodiphenyl ether	mg/kg		5	n.d.	-
Pentabromodiphenyl ether	mg/kg		5	n.d.	-
Hexabromodiphenyl ether	mg/kg		5	n.d.	-
Heptabromodiphenyl ether	mg/kg		5	n.d.	-
Octabromodiphenyl ether	mg/kg		5	n.d.	-
Nonabromodiphenyl ether	mg/kg		5	n.d.	-
Decabromodiphenyl ether	mg/kg		5	n.d.	-

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Note :

1. mg/kg = ppm : 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated
5. ** = Qualitative analysis (No Unit)
6. Negative = Undetectable / Positive = Detectable
7. Testing range of asbestos qualitative analysis is from less than 0.1% to 100%. The judgment criterion: asbestos fibers being found is shown as "Positive"; asbestos fibers not being found is shown as "Negative".

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

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

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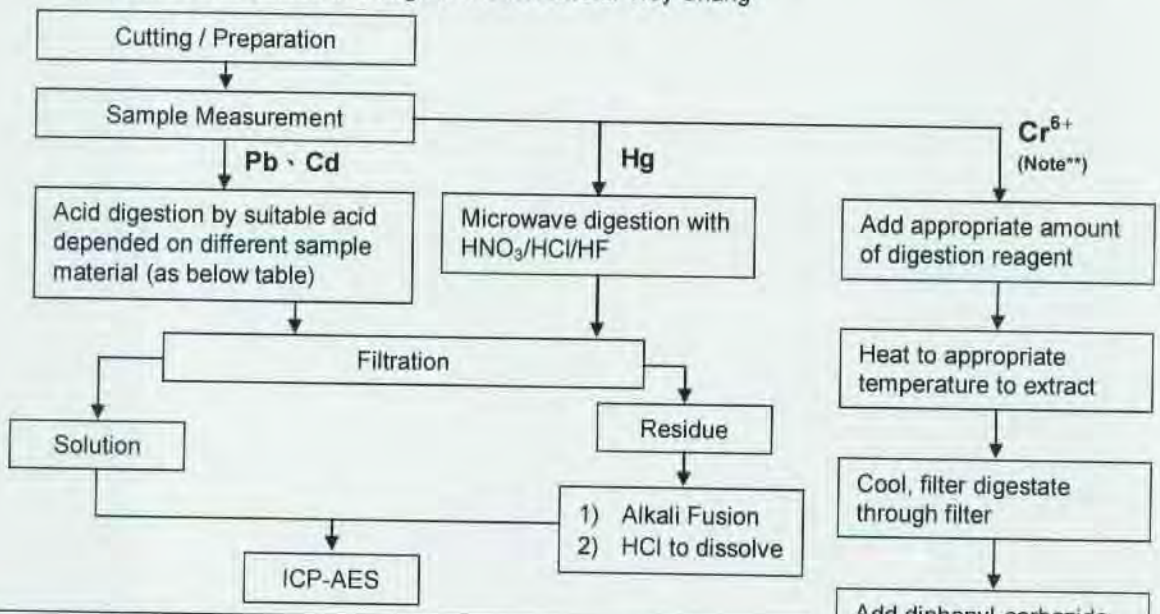
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr^{6+} test method excluded)
2) Name of the person who made measurement: Climbgreat Yang
3) Name of the person in charge of measurement: Troy Chang



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO_3, HCl, HF, H_2O_2
Glass	HNO_3/HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO_3
Plastic	H_2SO_4, H_2O_2, HNO_3, HCl
Others	Added appropriate reagent to total digestion

Note :** (1) For non-metallic material, add alkaline digestion reagent and heat to 90~95℃.
(2) For metallic material, add pure water and heat to boiling.

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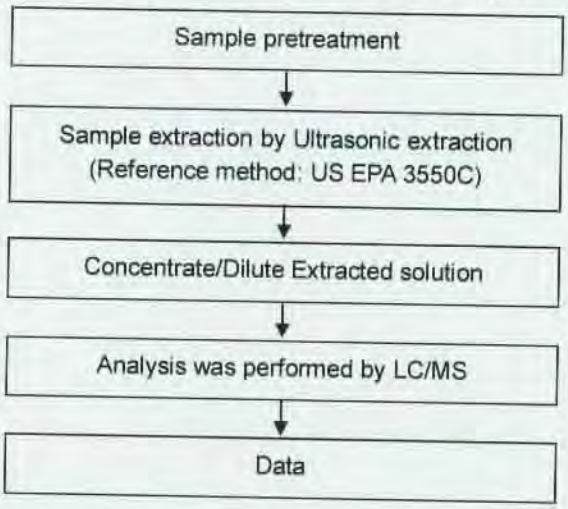
PFOA/PFOS analytical flow chart of Ultrasonic extraction (LC/MS) procedure

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



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PCTs analytical flow chart

- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang

Sample pretreatment

↓

Sample extraction by organic solvent

↓

Concentrate/Dilute the extracted solution

↓

Analysis was performed by GC/MS

↓

Data

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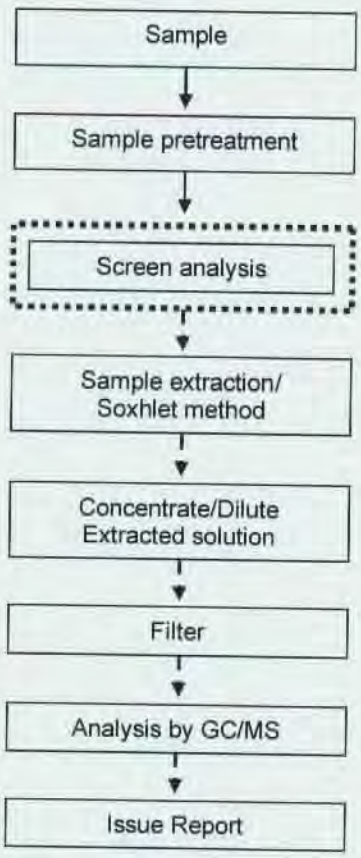
PBB/PBDE analytical FLOW CHART

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

First testing process →
Optional screen process ····
Confirmation process – ·▸



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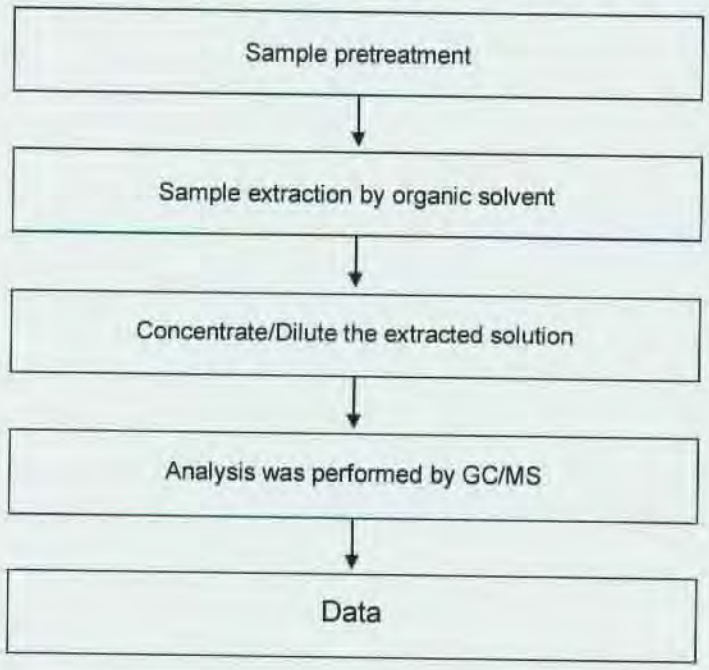
PCBs analytical flow chart

- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang



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Chlorinated Paraffins analytical flow chart

- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang

Sample pretreatment

↓

Sample extraction by organic solvent

↓

Concentrate/Dilute the extracted solution

↓

Analysis was performed by GC/MS

↓

Data

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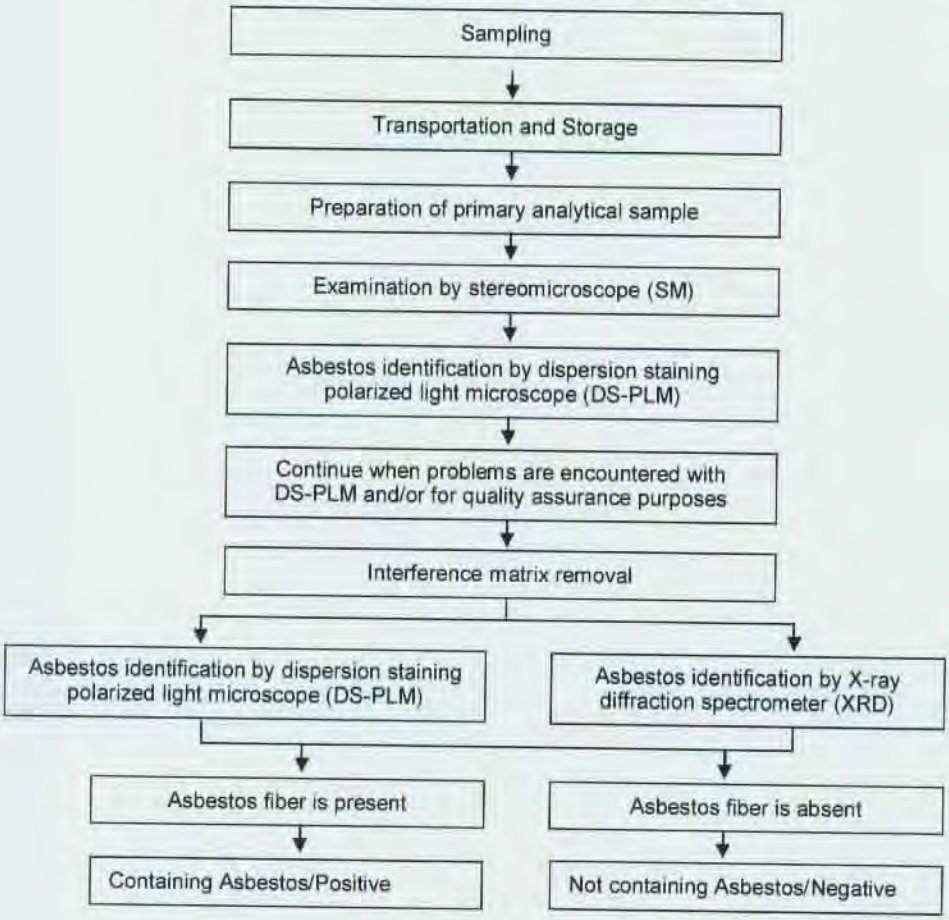
Analysis flow chart for determination of Asbestos

- Name of the person who made measurement: Victor Kao
- Name of the person in charge of measurement: Wendy Wei

[Reference method: EPA 600/R-93/116]



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Analytical flow chart of Organic-Tin content

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

Sample pretreatment

↓

Sample extraction by organic solvent

↓

Derived by Sodium tetraethylborate

↓

Concentrate/Dilute Extracted solution

↓

Analysis was performed by GC/FPD

↓

Data

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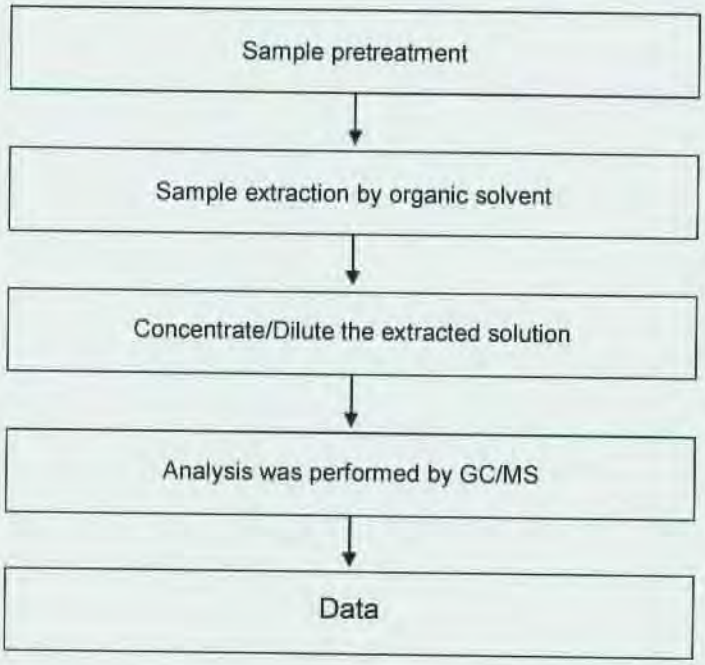
PCNs analytical flow chart

- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang



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Analytical flow chart of phthalate content

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

Sample pretreatment/separation

↓

Sample extraction by soxhlet method

↓

Concentrate/Dilute Extracted solution

↓

Analysis was performed by GC/MS

↓

Data

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Formaldehyde analytical flow chart

- Name of the person who made measurement: Scott Ku
- Name of the person in charge of measurement: Troy Chang

【 **Test Method** : US EPA 8315A、ISO 17226-1 】

Sample pretreatment

↓

Sample extraction

↓

Derived by DNPH Concentrate/Dilute Extracted solution

↓

Analysis was performed by HPLC/DAD

↓

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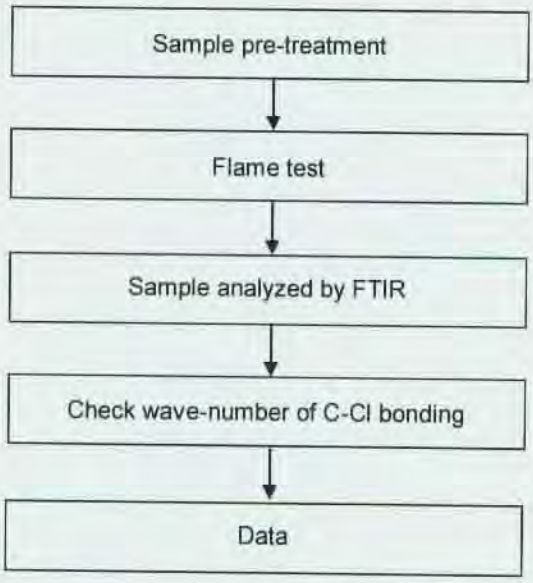
Analysis flow chart for determination of PVC in material

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



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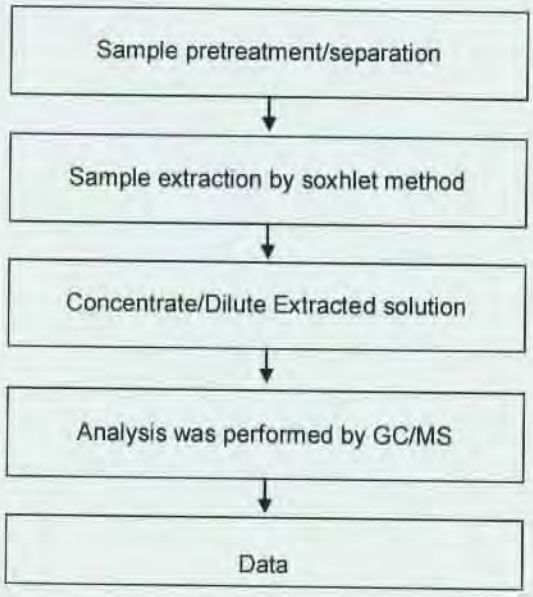
DBBT analytical flow chart

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



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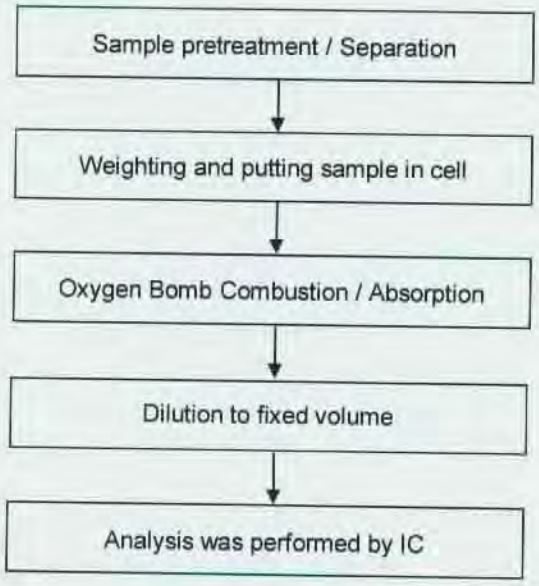
Analytical flow chart of halogen content

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



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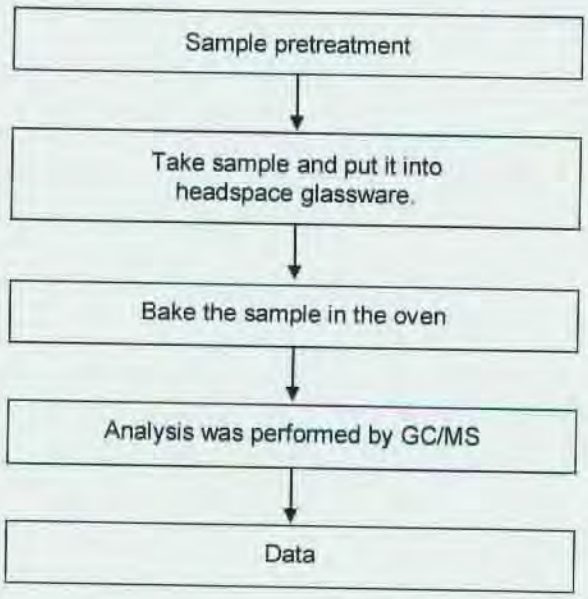
Analytical flow chart of volatile organic compounds (VOCs)

- Name of the person who made measurement : Chun Wu
- Name of the person in charge of measurement : Shinjyh Chen

【Reference method : US EPA 5021】



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

CE/2013/13191

** End of Report **

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Test Report Number : TWNC00282887

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

Date : Oct 31, 2012

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

Part Description	: Filler
Part Number	: 091251
Date Sample Received	: Oct 24, 2012
Date Test Started	: Oct 25, 2012

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

Authorized By:
On Behalf Of Intertek Testing Services
Taiwan Limited

K. Y. Liang
Director

Intertek Testing Services Taiwan Ltd.
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全國公證檢驗股份有限公司
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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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(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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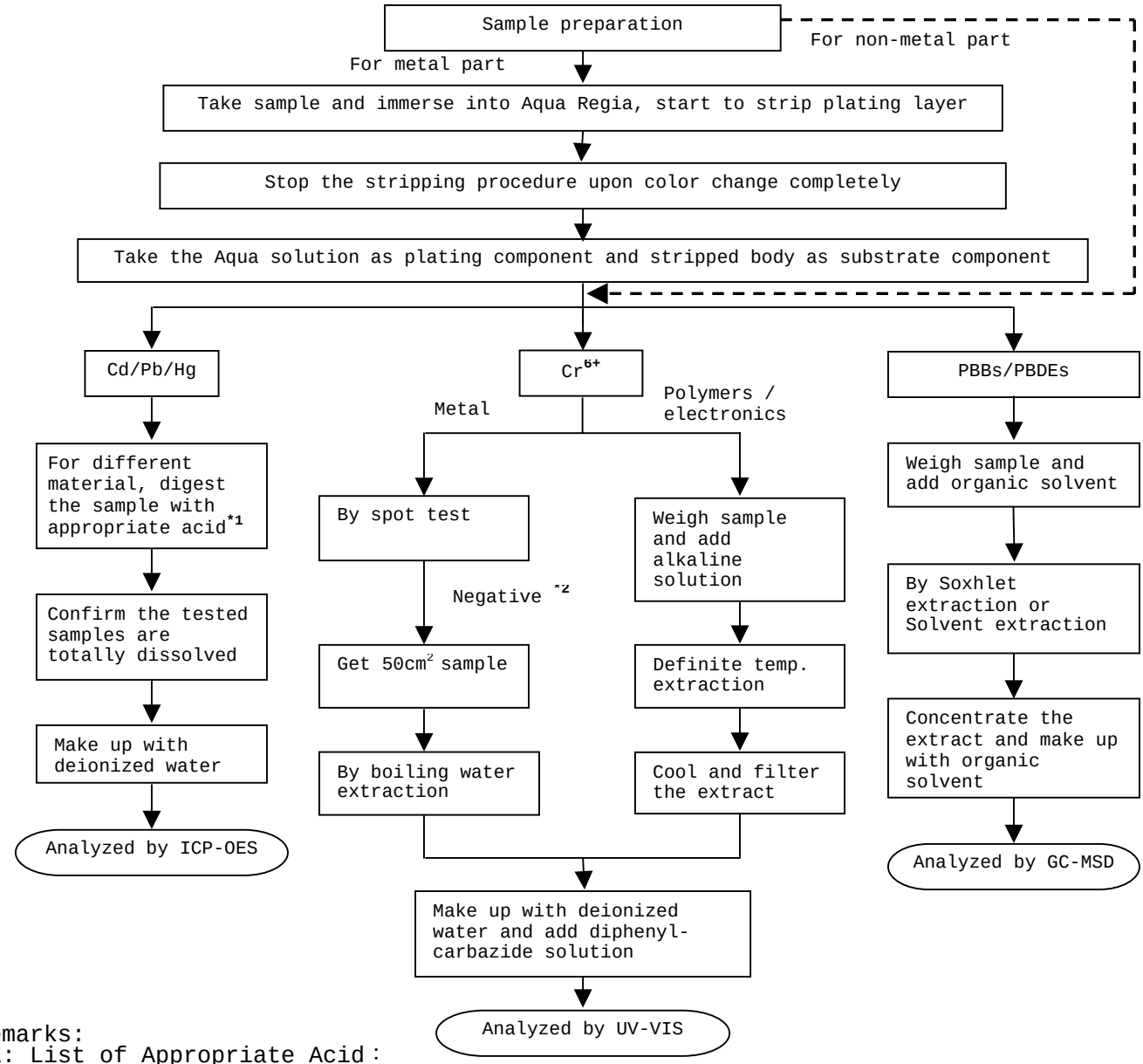
Number : TWNC00282887

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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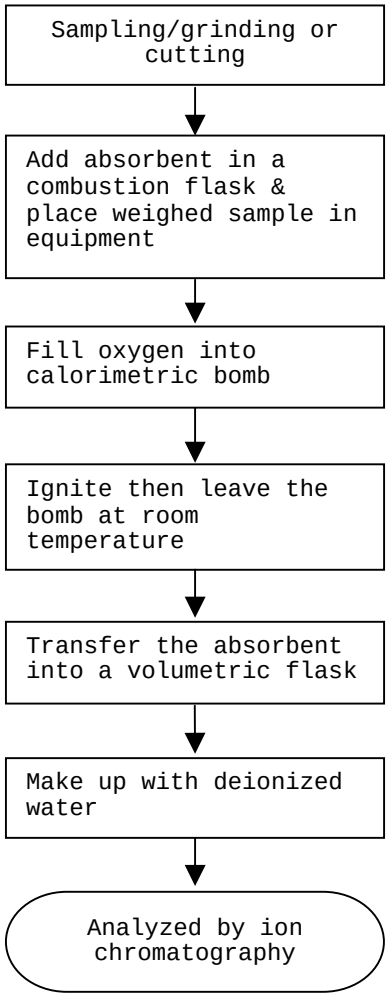
Test Conducted

(Ⅳ) Measurement Flowchart:

Test for Halogen Content

Reference Standard：EN 14582



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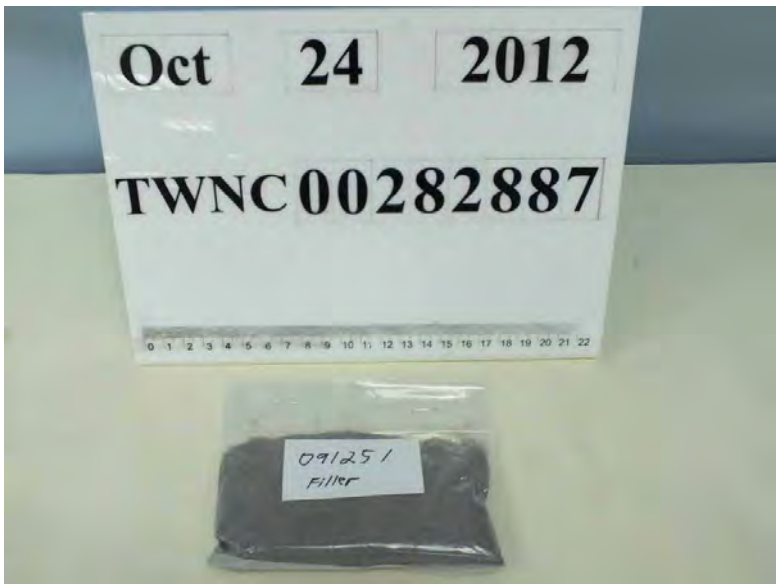
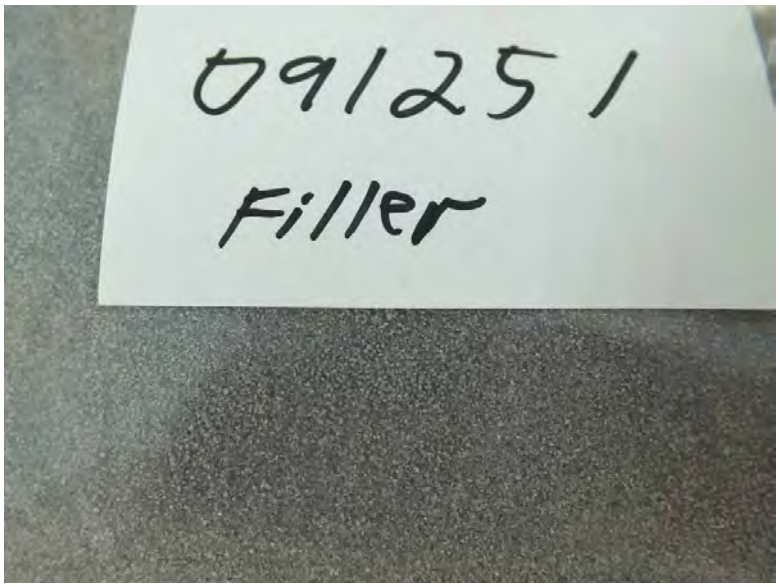
Test Conducted

Photo





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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.

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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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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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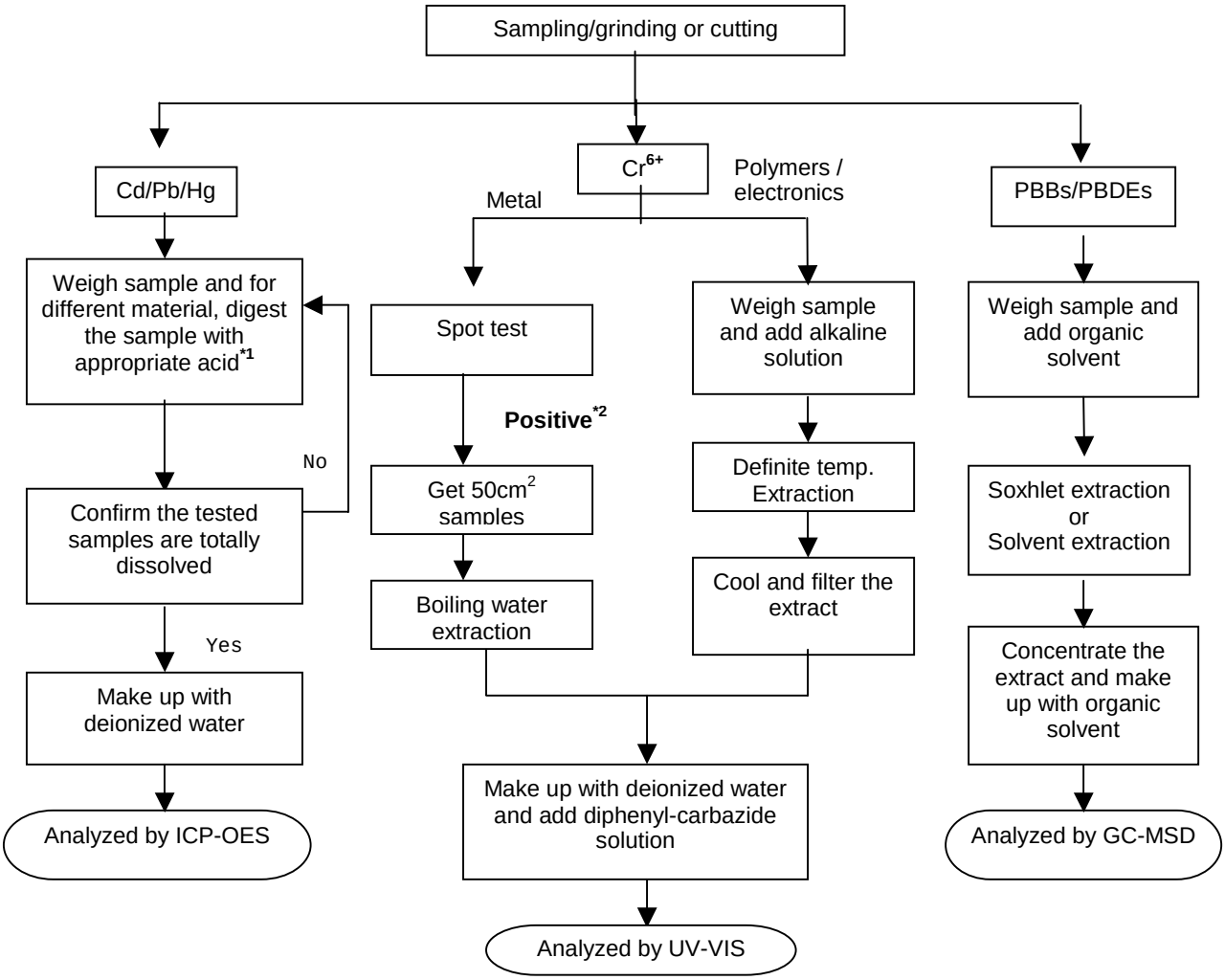
Tests Conducted

(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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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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e sgs.china@sgs.com

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 cm² sample surface area.

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

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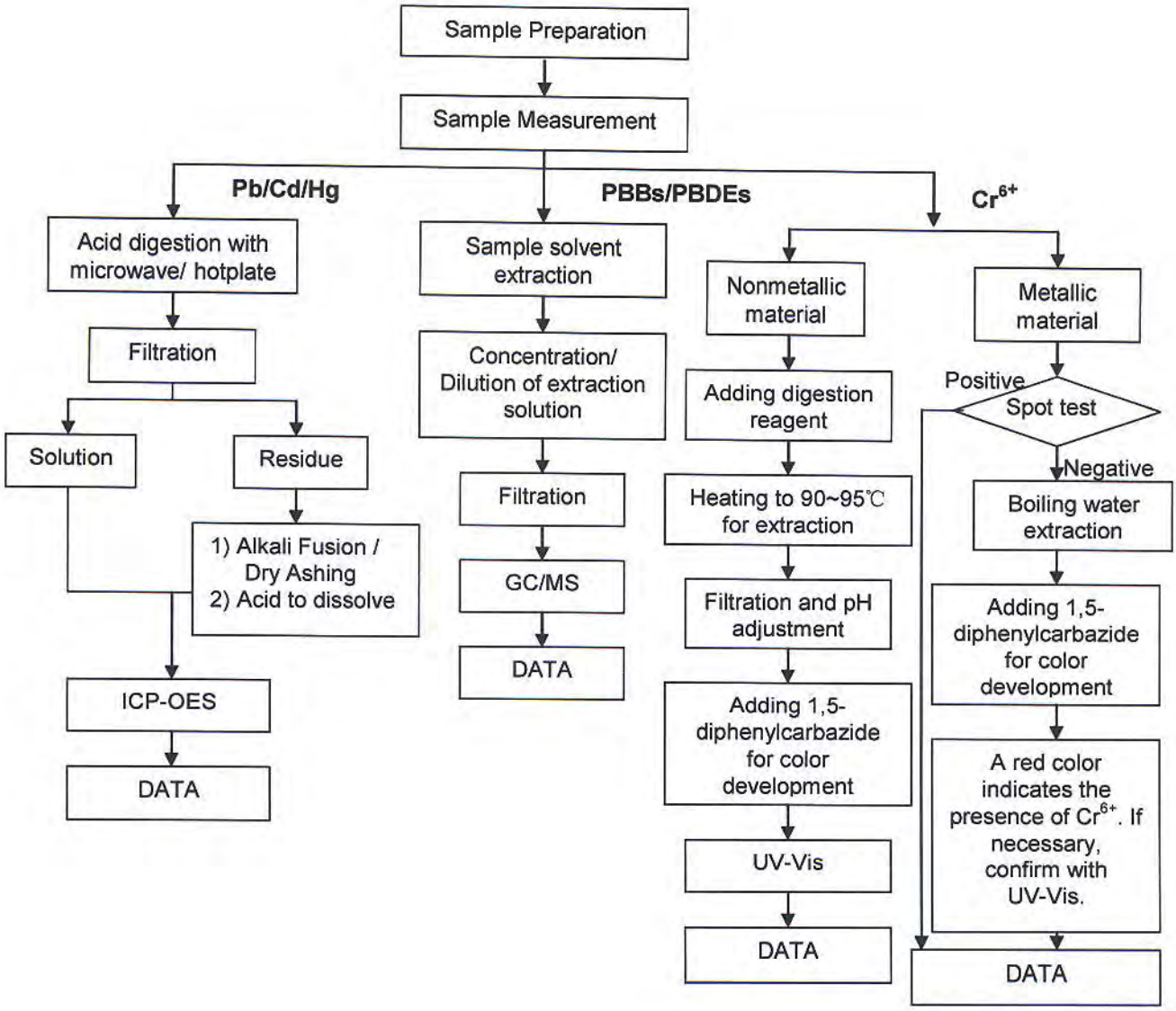
ATTACHMENTS

RoHS Testing Flow Chart

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



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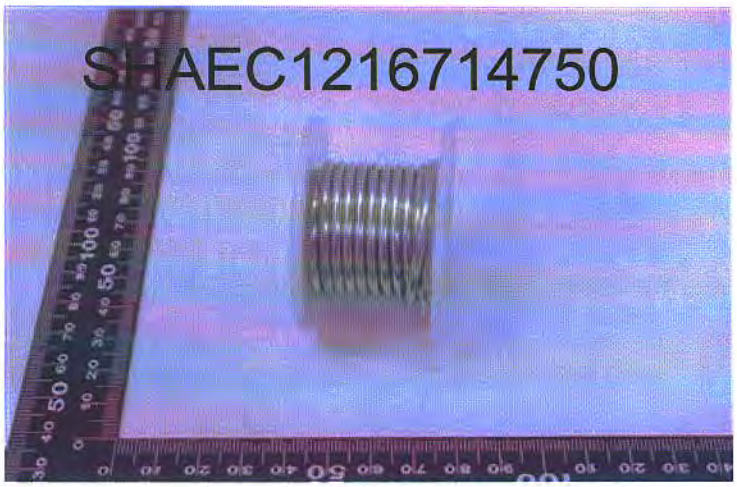
HL: (86-21) 61402594 HL: (86-21)54500353 e sgs.china@sgs.com

Sample photo:



SHA12-167147.043

SGS authenticate the photo on original report only

*** End of Report ***

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e sgs.china@sgs.com

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

Intertek Testing Services Ltd., Shanghai
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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
%= percentage based on dry weight of sample.

****

To be continued

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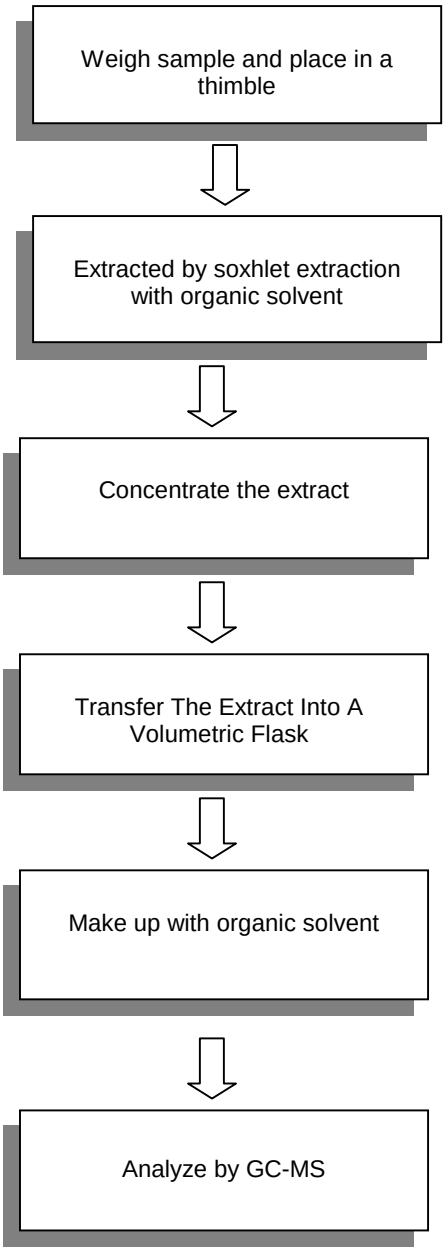
Tests Conducted

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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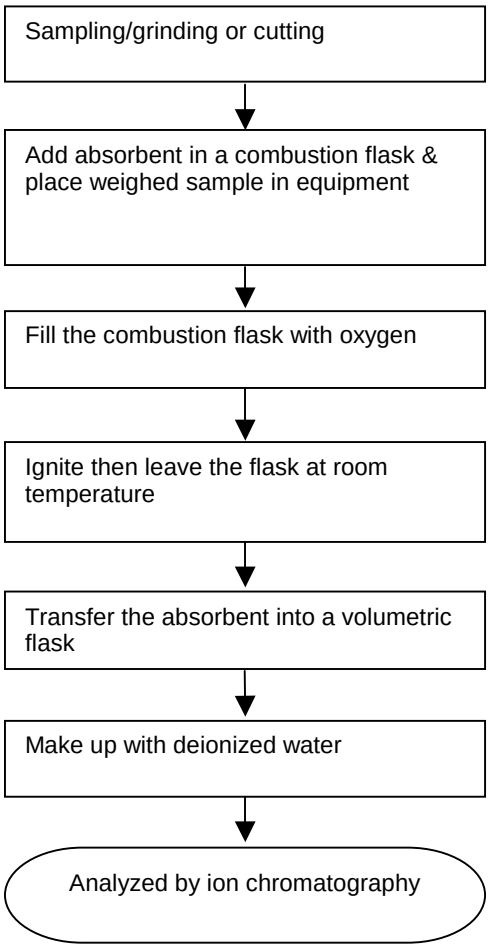
Tests Conducted

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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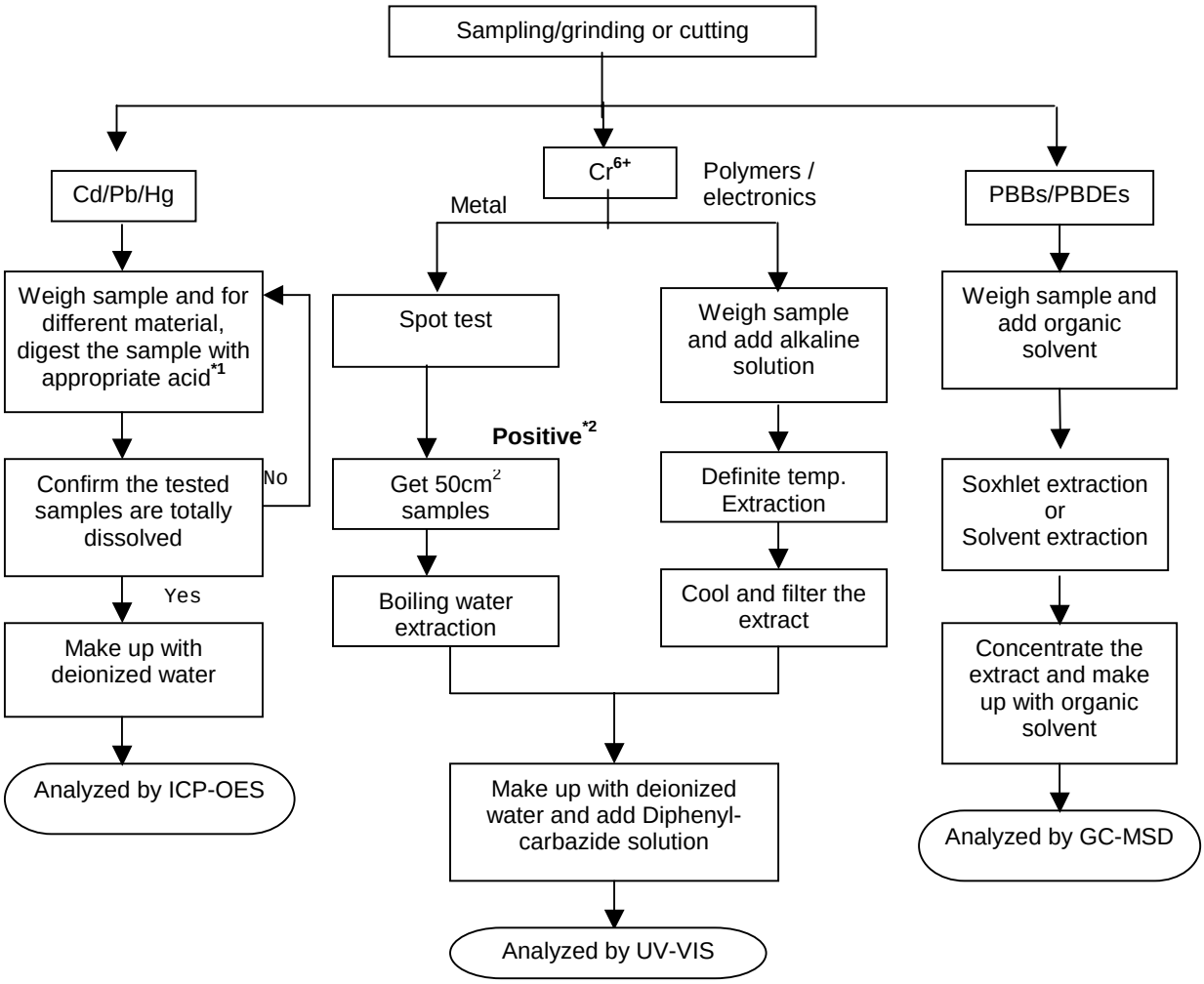
Tests Conducted

(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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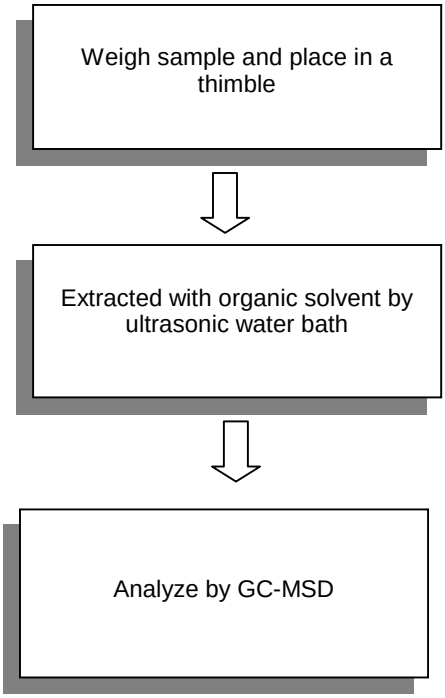
Tests Conducted

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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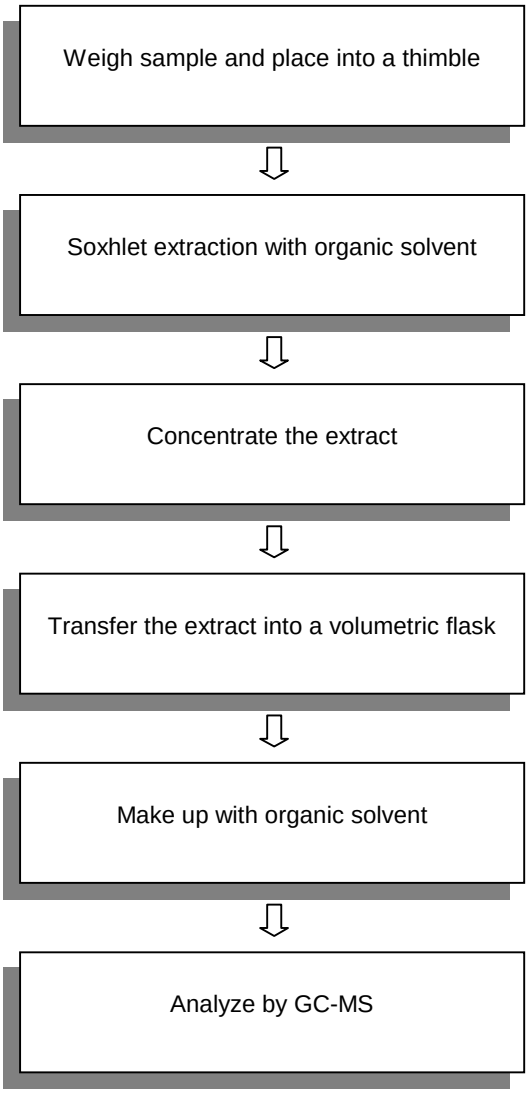
Tests Conducted

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content



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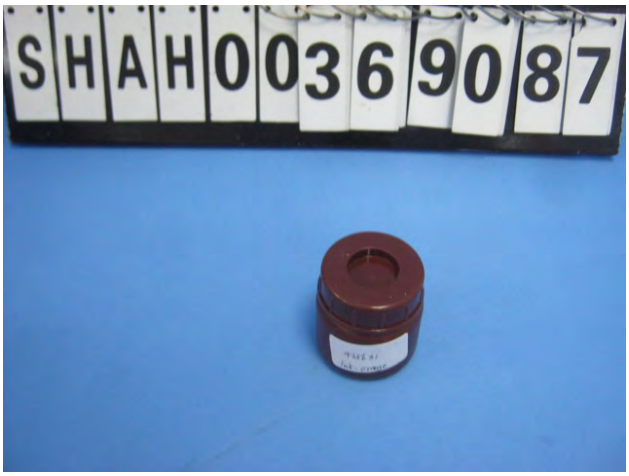
Test Report Number： SHAH00369087

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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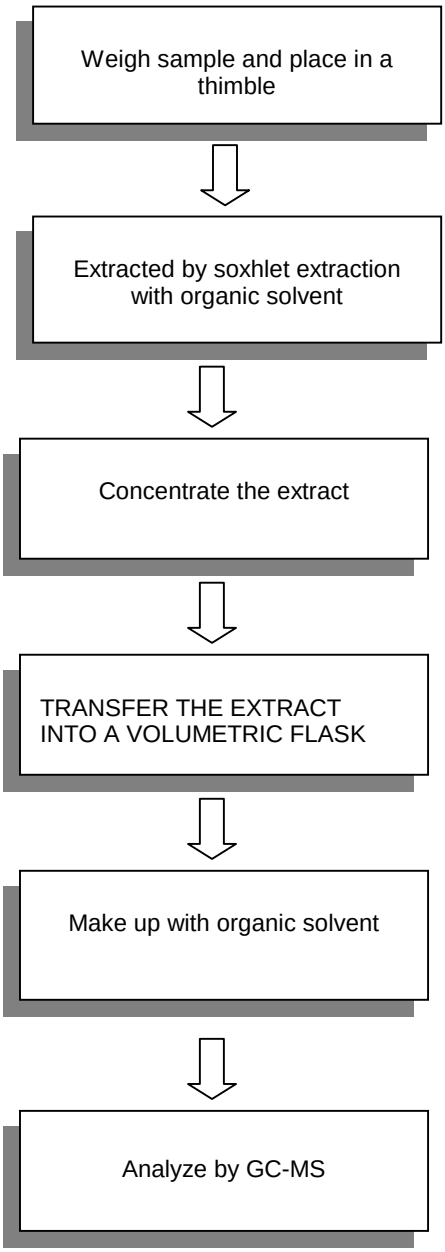
Tests Conducted
Measurement flowchart:

Test for phthalate content (EN14372)



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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)	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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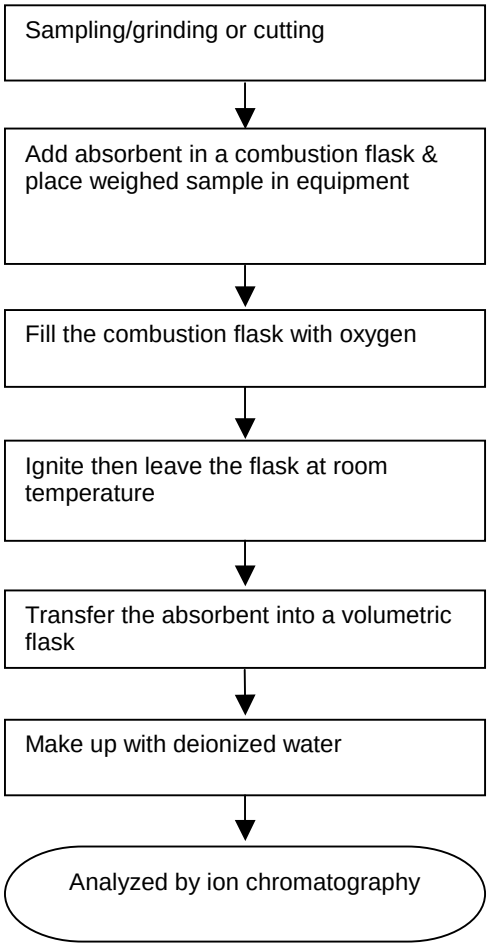
Tests Conducted

(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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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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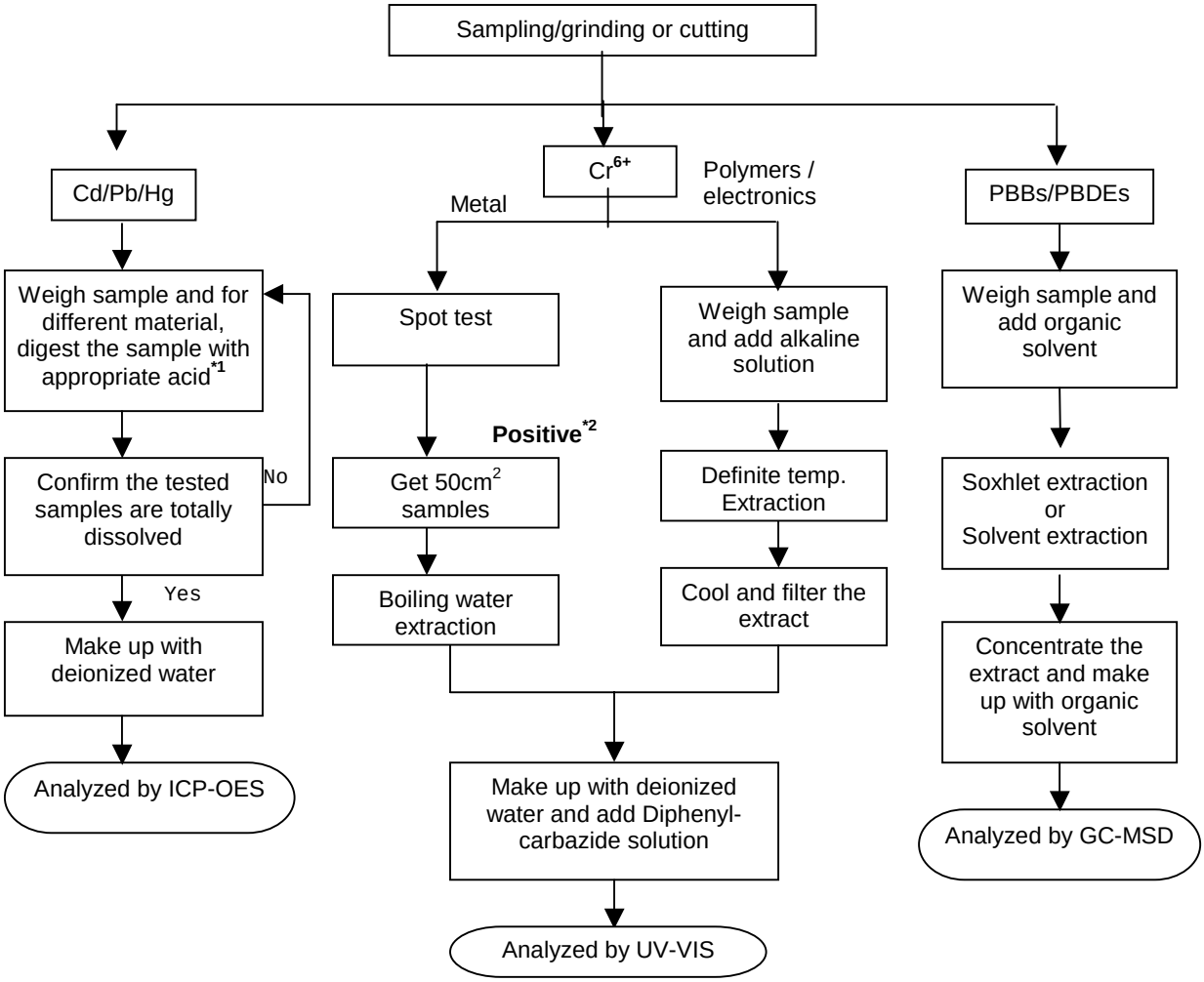
Tests Conducted

(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.

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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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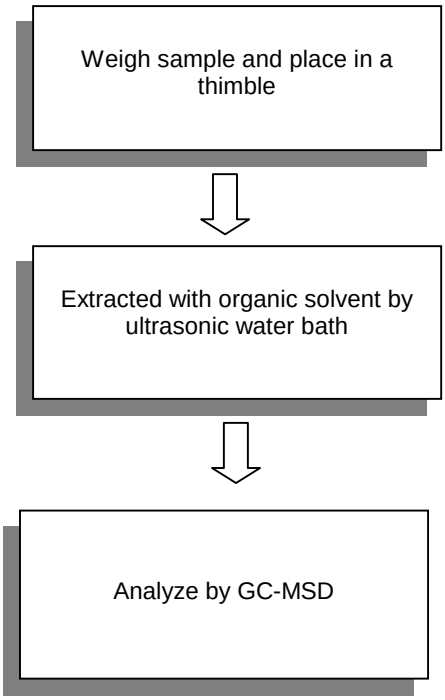
Tests Conducted
Measurement Flowchart:

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



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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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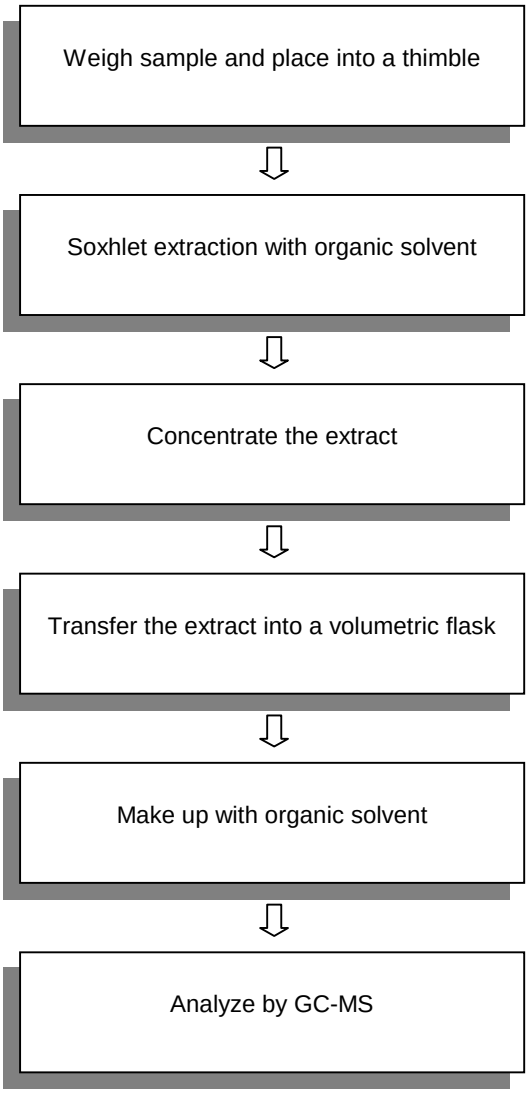
Tests Conducted

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content



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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： 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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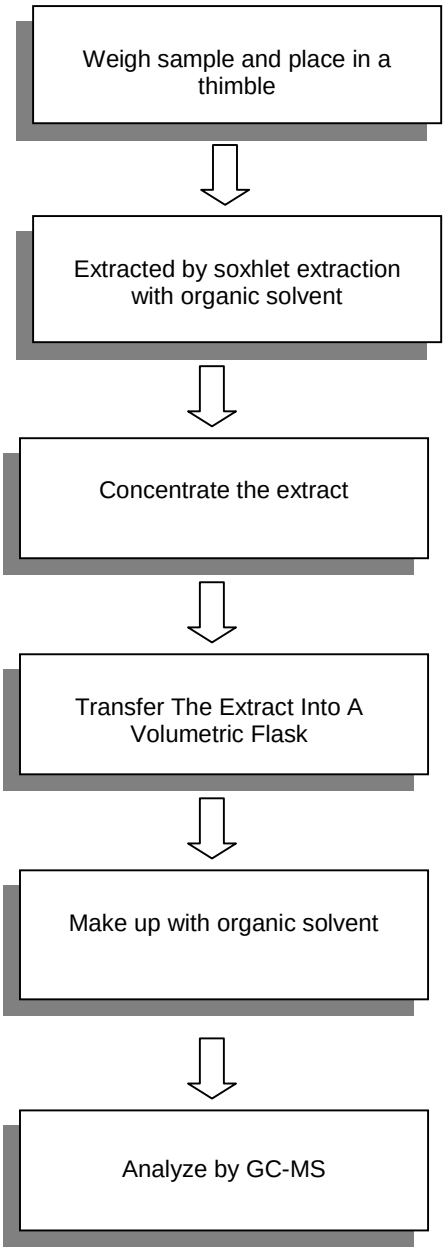
Tests Conducted

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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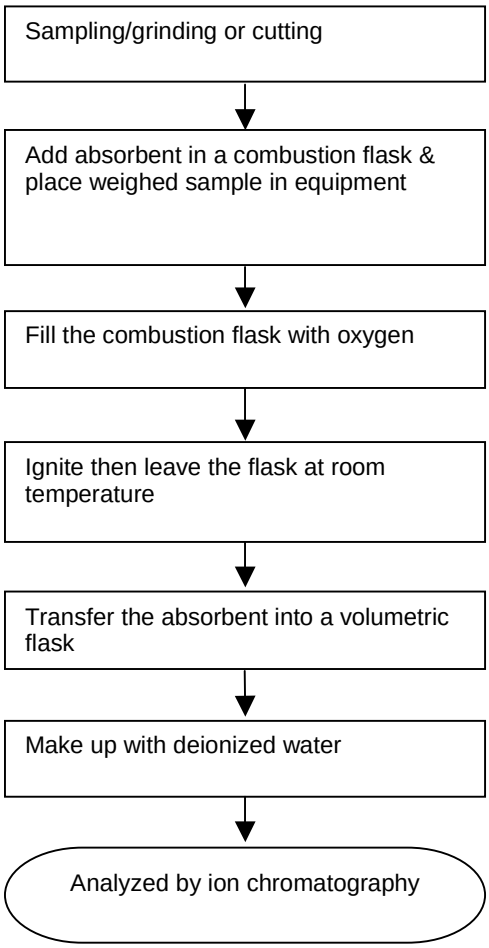
Tests Conducted

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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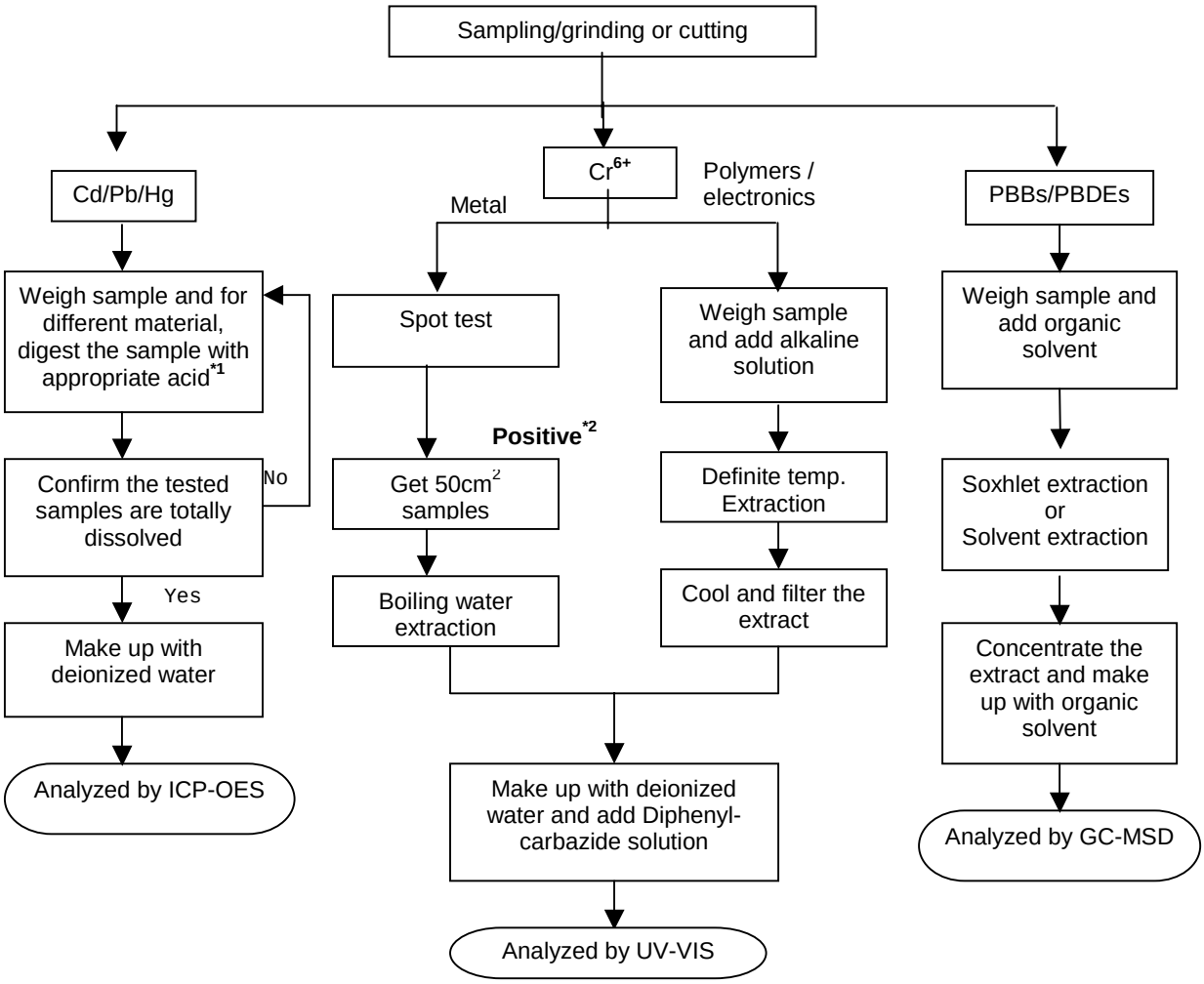
Tests Conducted

(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.

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To be continued

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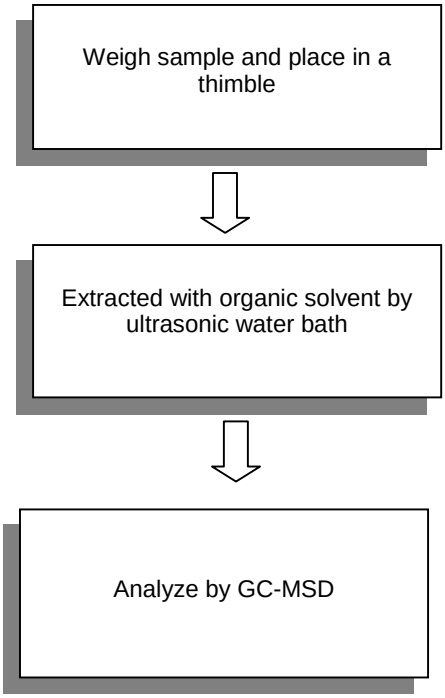
Tests Conducted

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

****

To be continued

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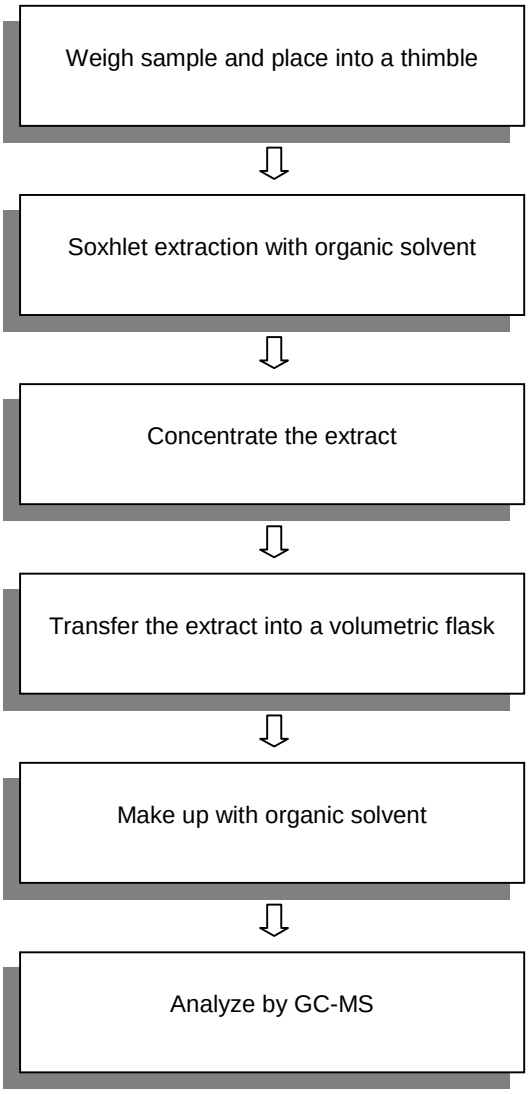
Tests Conducted

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content



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Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740
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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： SHAH00379810

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

Date： MAY 13, 2013

Sample Description：

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

Item Name ： Ink-Deep Yellow.

Part No. ： 425634.

****

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. (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：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.

****

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

****

To be continued

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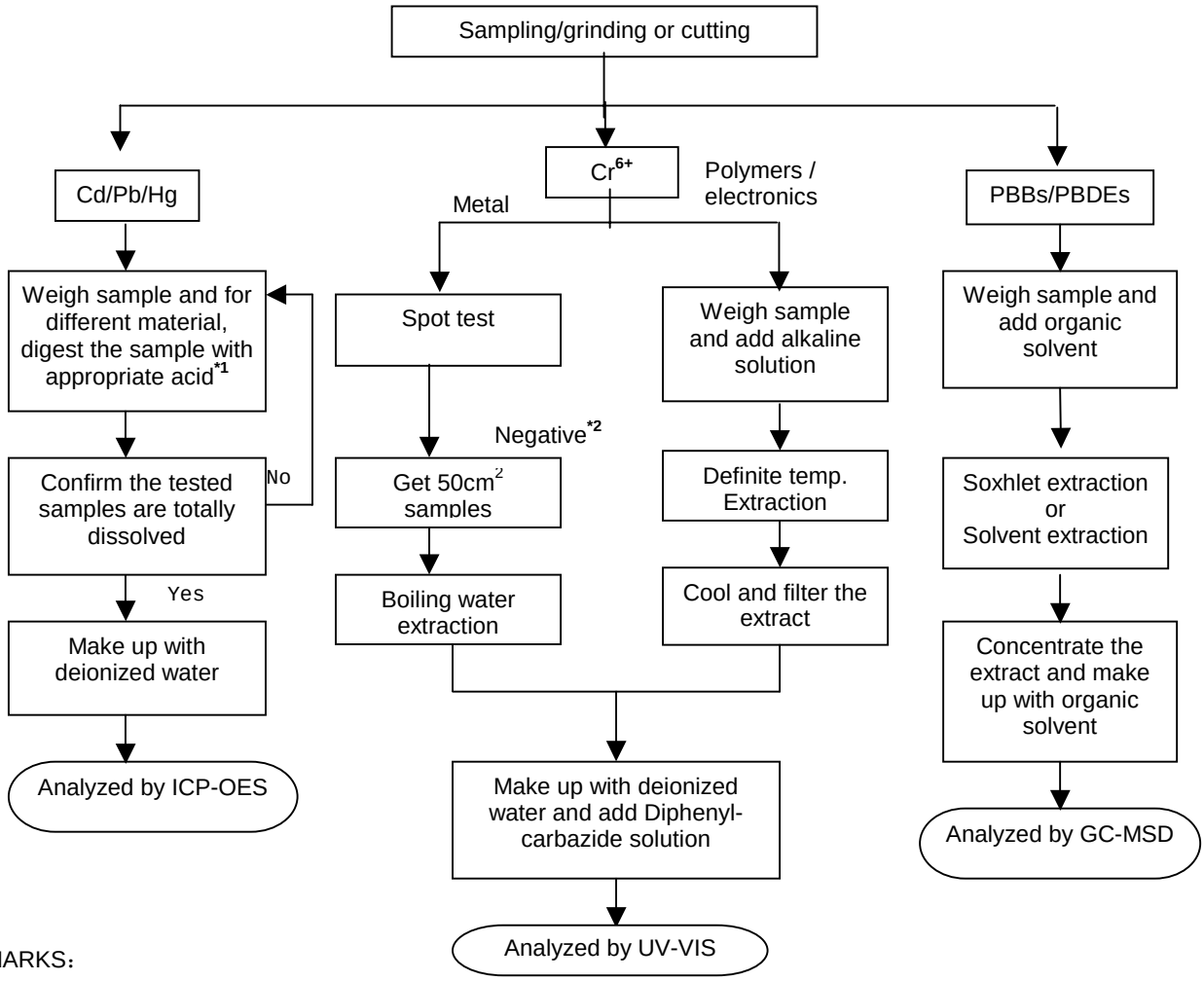
Tests Conducted
(Ⅳ) MEASUREMENT FLOWCHART:
Test for Cd/ Pb/ Hg/Cr (VI)/ PBBs/PBDEs contents
Reference standard: IEC 62321 edition 1.0:2008



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

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 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

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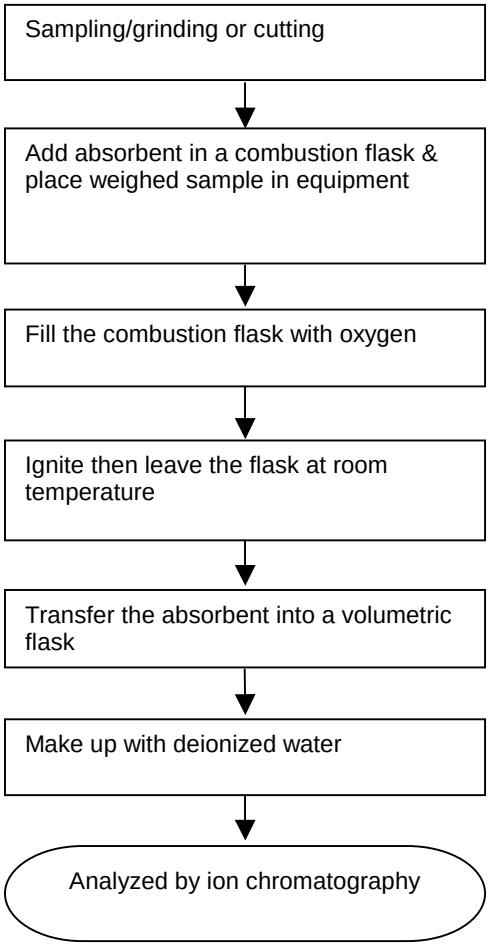
Tests Conducted

(III) measurement flowchart：

Test for halogen content
Reference standard：EN 14582



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Tests Conducted

3. 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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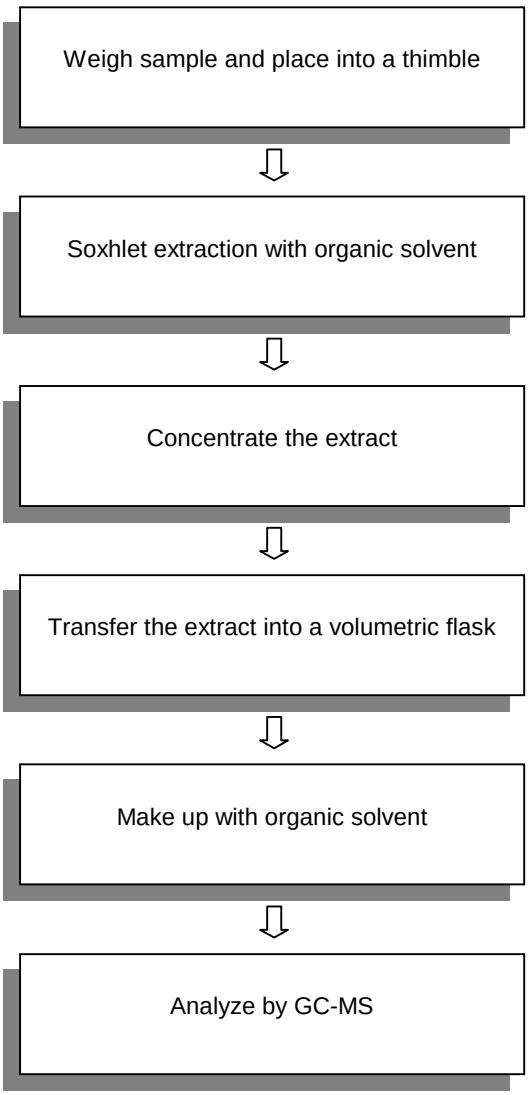
Tests Conducted

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content



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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

****

To be continued

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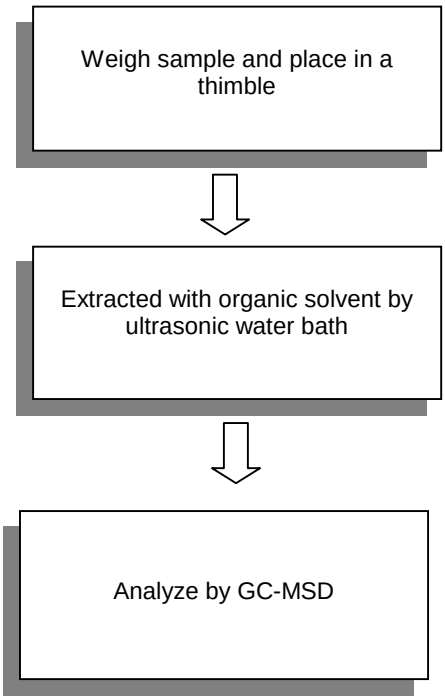
Tests Conducted

Measurement Flowchart:

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



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Tests Conducted

5 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

Date sample received：May 6, 2013
Testing period：May 6, 2013 To May 10, 2013

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To be continued

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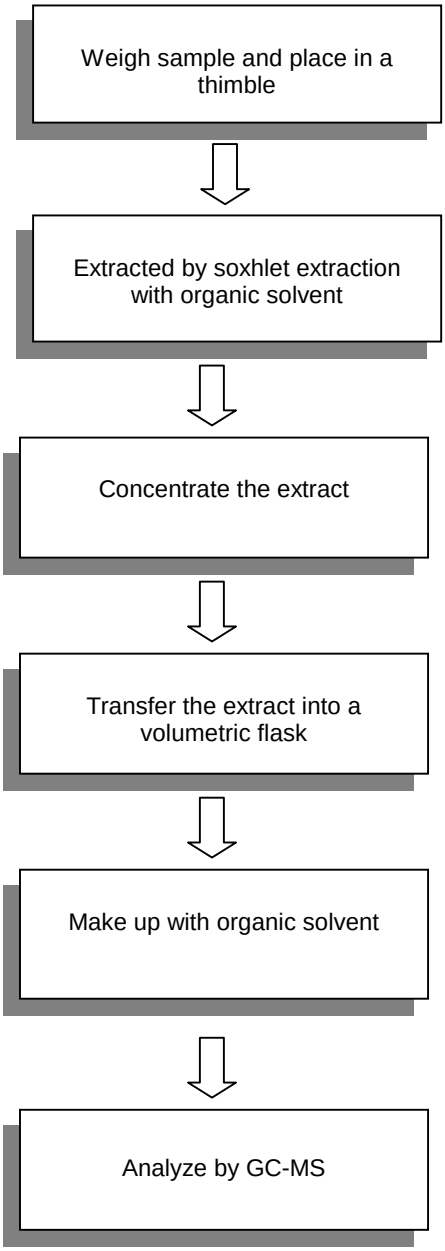
Tests Conducted

Measurement flowchart:

Test for phthalate content



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Tests Conducted

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End of report

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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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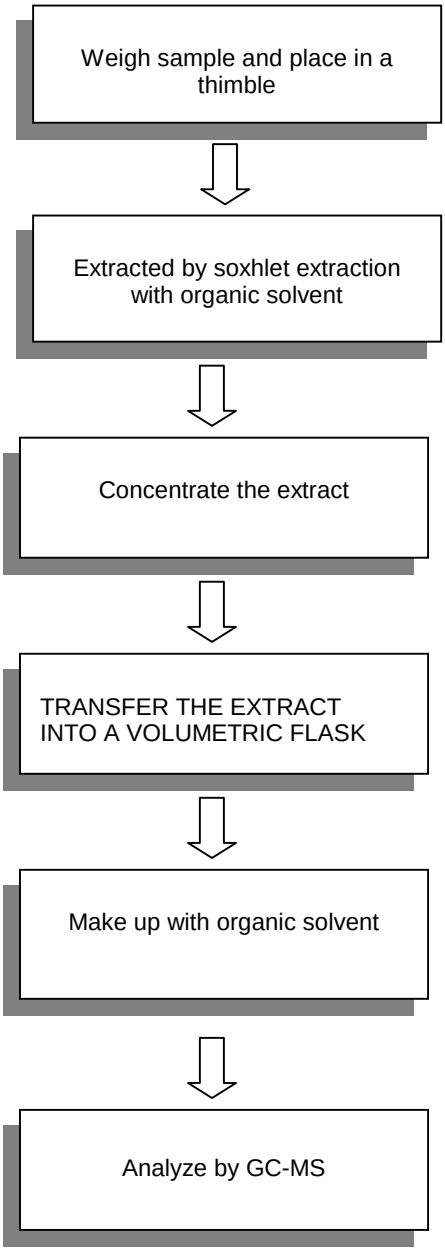
Tests Conducted

Measurement flowchart:

Test for phthalate content (EN14372)



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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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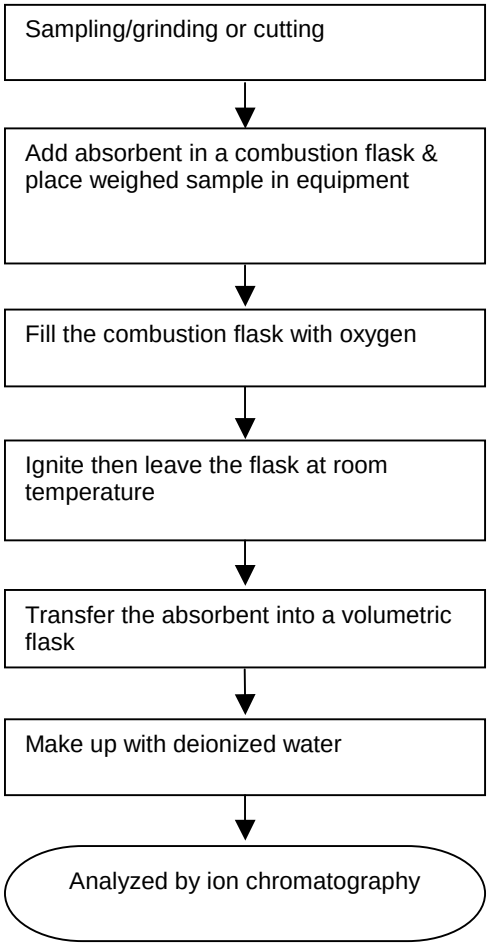
Tests Conducted

(III) MEASUREMENT FLOWCHART：

Test for halogen content
Reference Standard：EN 14582



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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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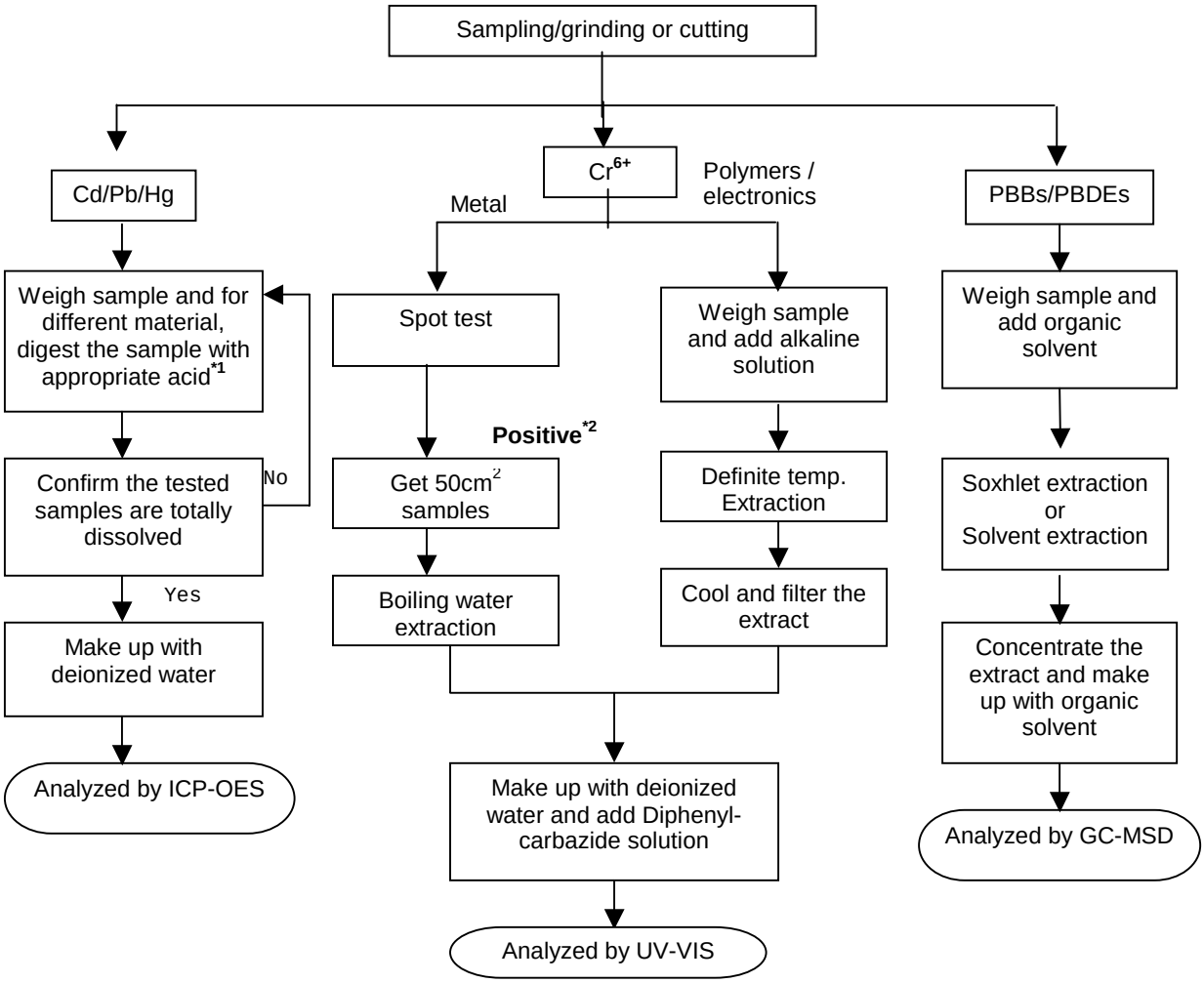
Tests Conducted

(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

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To Be Continued

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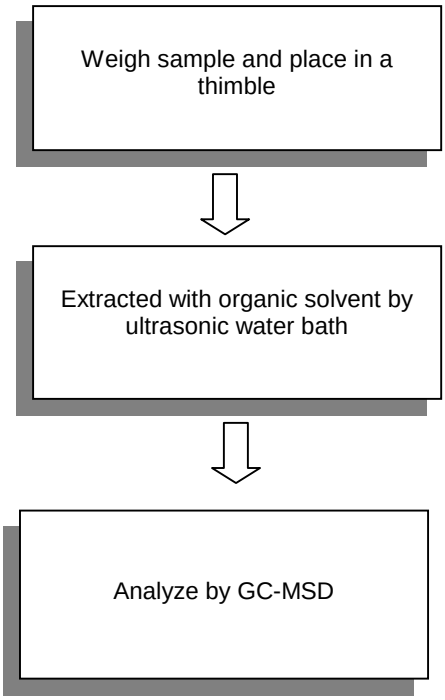
Tests Conducted

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

****

To Be Continued

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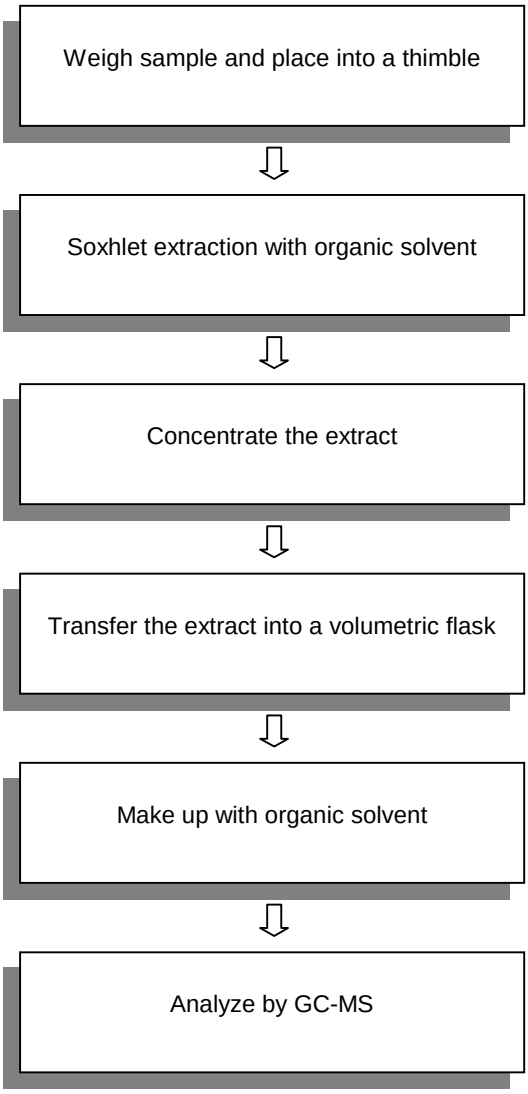
Tests Conducted

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content



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To Be Continued

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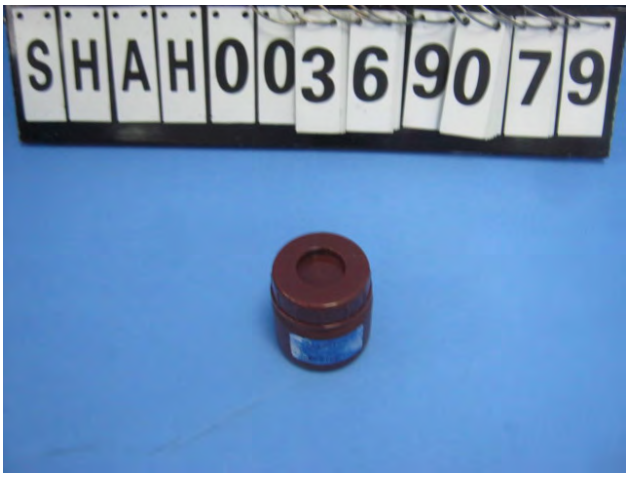
Test Report Number： SHAH00369079

Tests Conducted



Picture Of Sample

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

****

End Of Report

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Test Report

Number： SHAH00379790

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

Date： MAY 13, 2013

Sample Description：

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

Item Name ： Ink-Brown.

Part No. ： 425636.

****

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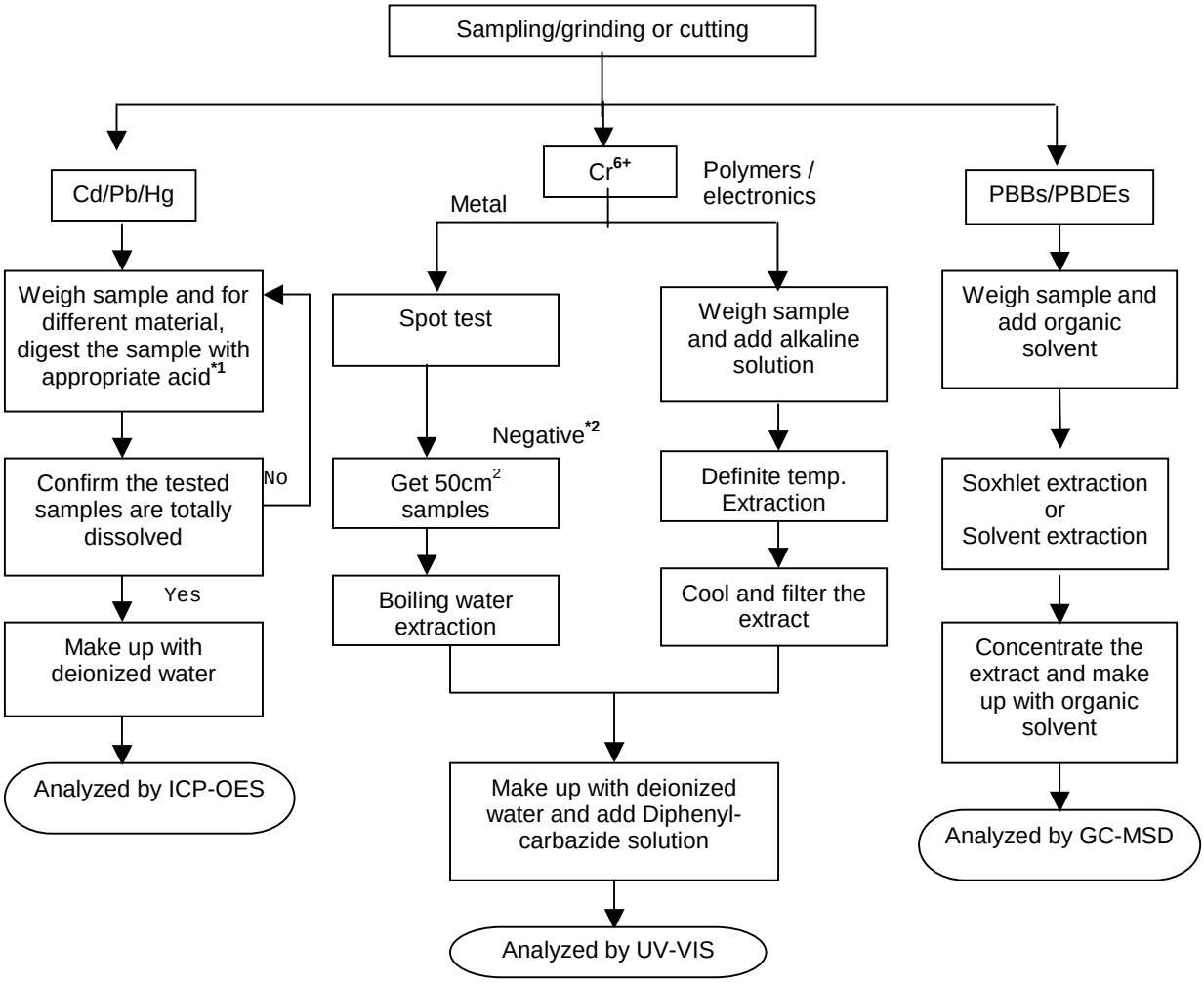
Tests Conducted
(Ⅳ) MEASUREMENT FLOWCHART:
Test for Cd/ Pb/ Hg/Cr (VI)/ PBBs/PBDEs contents
Reference standard: IEC 62321 edition 1.0:2008



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

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 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

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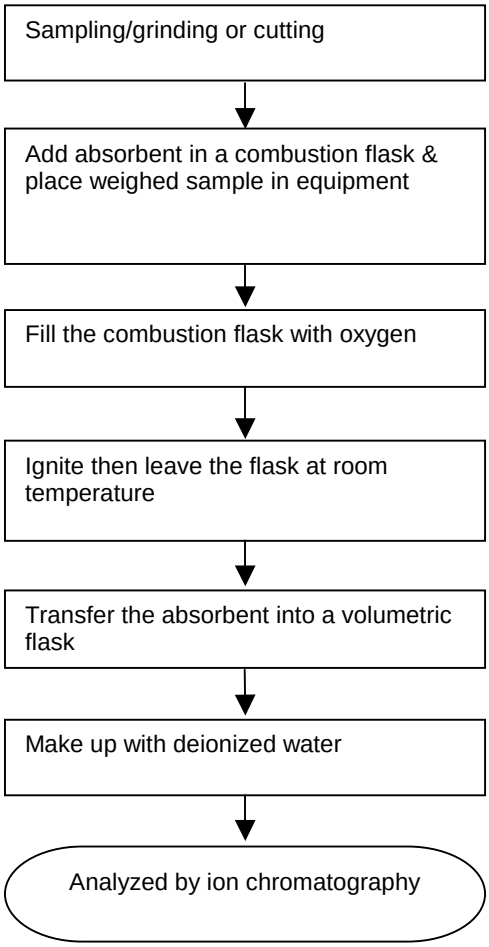
Tests Conducted

(III) MEASUREMENT FLOWCHART：

Test for halogen content
REFERENCE STANDARD：EN 14582



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Tests Conducted

3 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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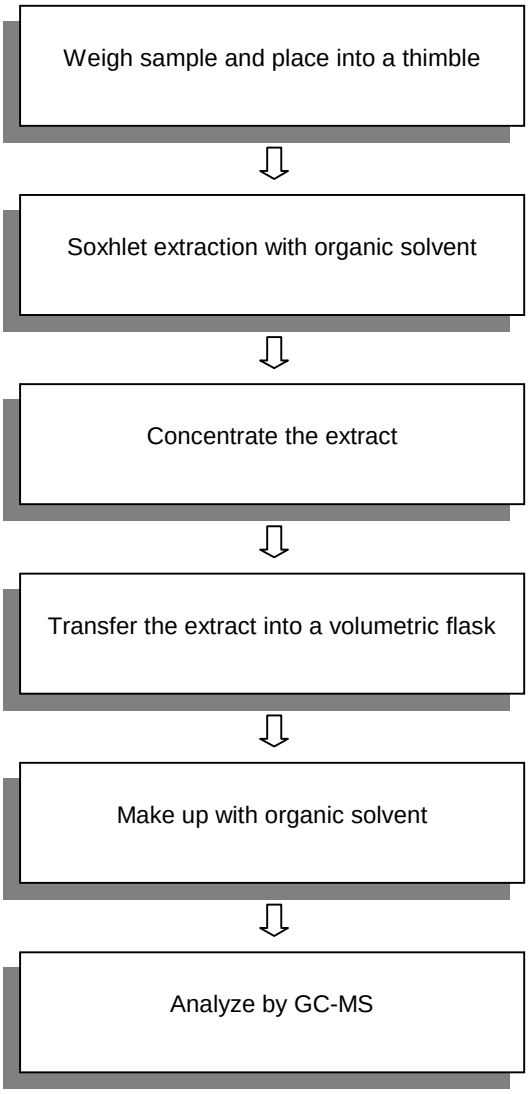
Tests Conducted

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content



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To be continued

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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

****

To be continued

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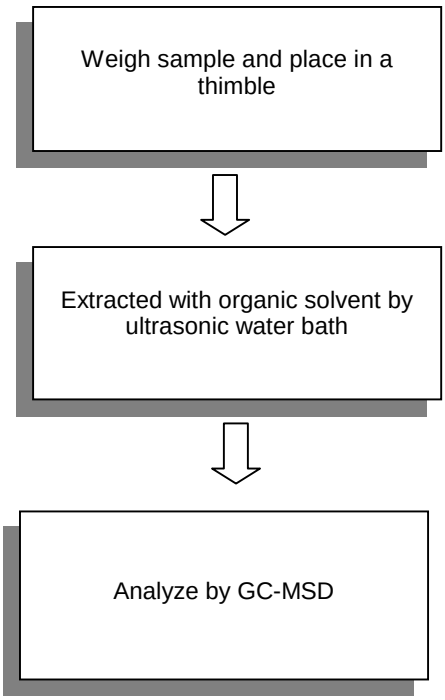
Tests Conducted

Measurement Flowchart:

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



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Tests Conducted

5 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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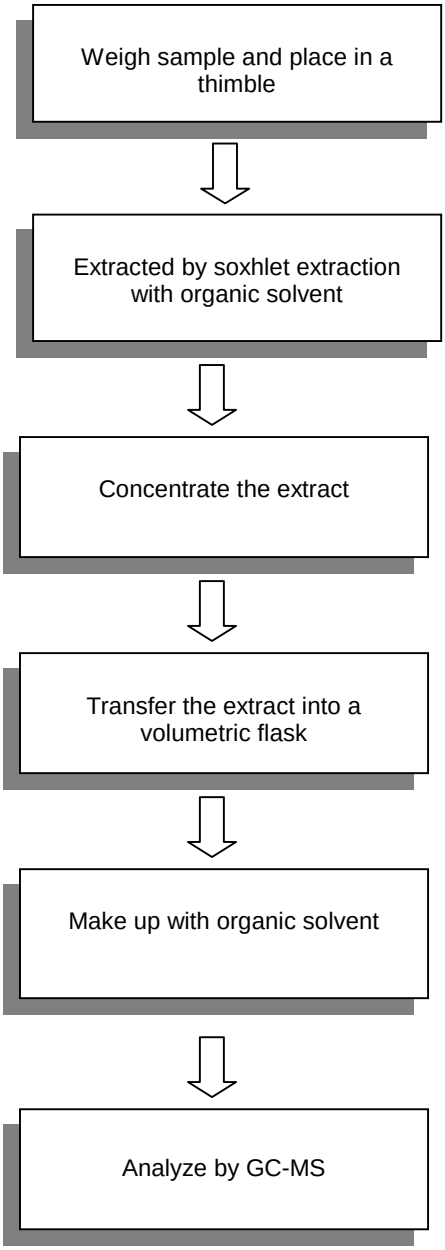
Tests Conducted

Measurement flowchart:

Test for phthalate content



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To be continued

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Tests Conducted

Picture of Sample

Date sample received： May 6, 2013
Testing period： May 6, 2013 to May 9, 2013

****

End of report

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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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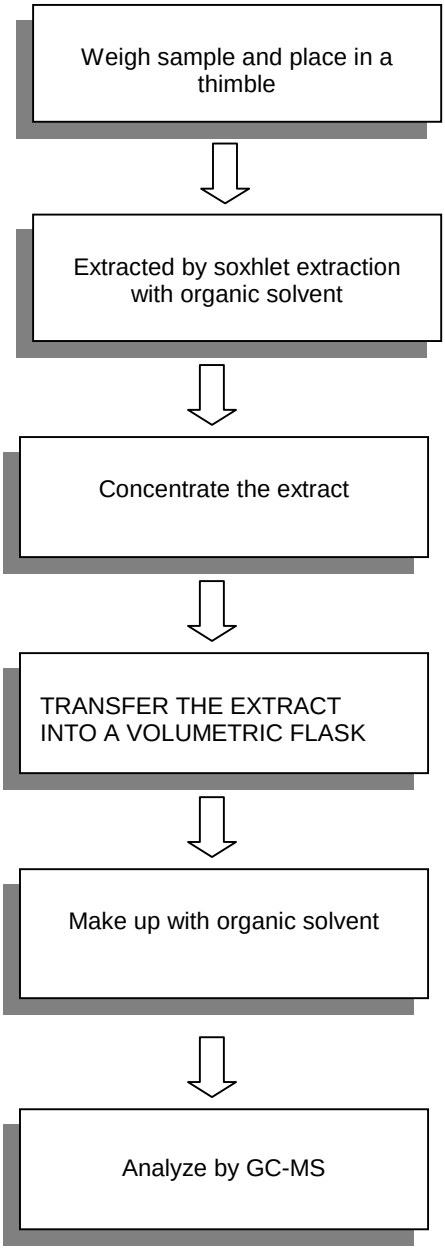
Tests Conducted

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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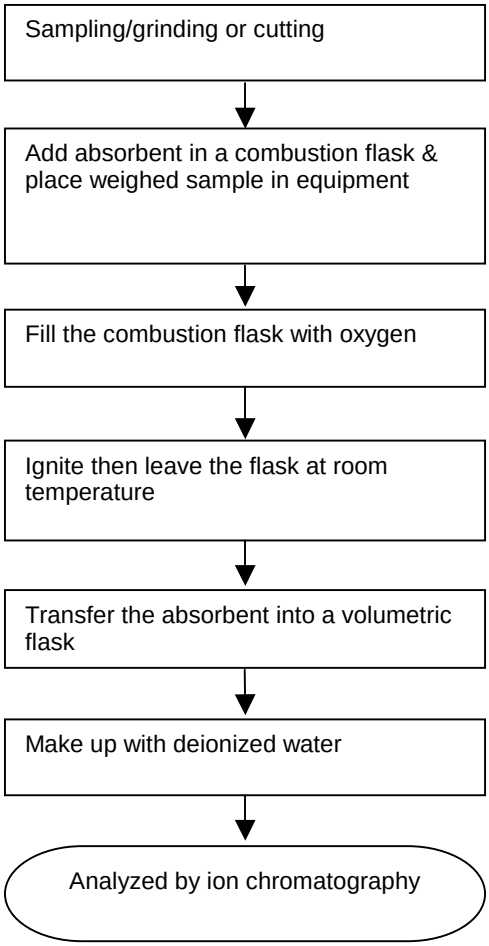
Tests Conducted

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.

****

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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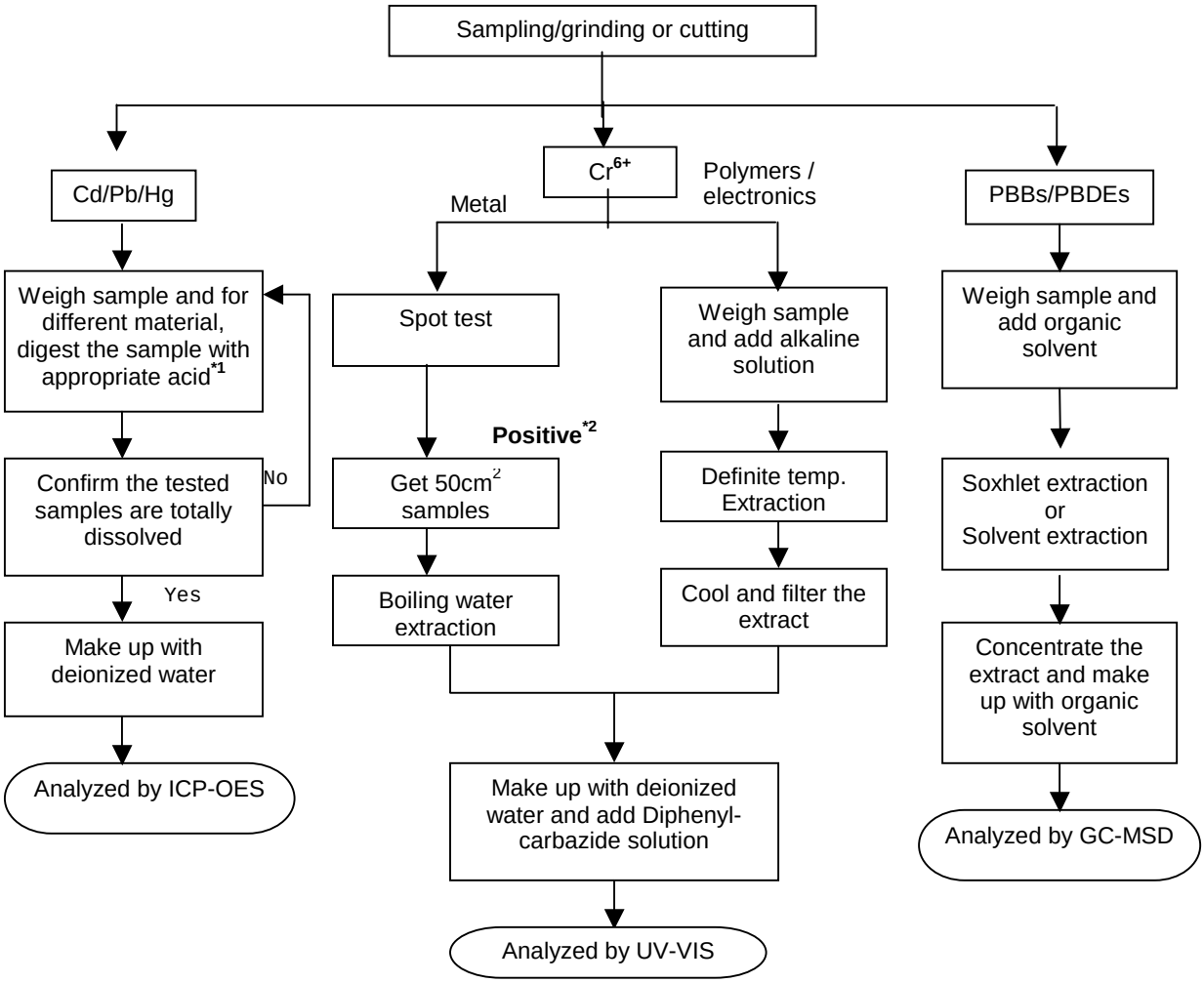
Tests Conducted

(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.

****

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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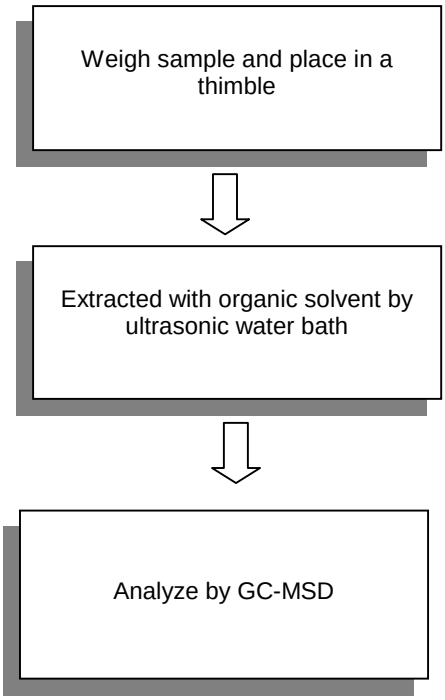
Tests Conducted
Measurement Flowchart:

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



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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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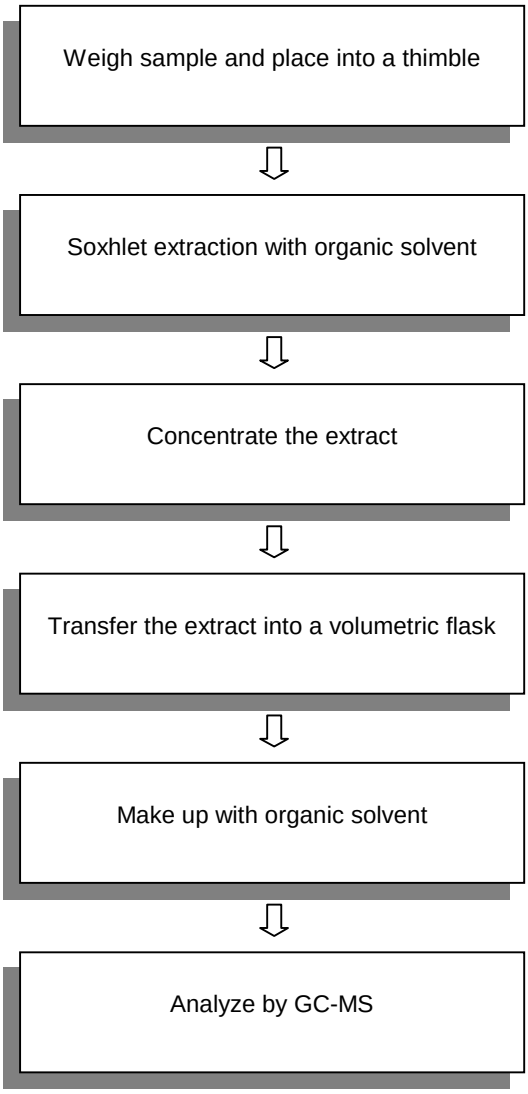
Tests Conducted

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content



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Tests Conducted

****

End of report

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Test Report

Number： SHAH00379813

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

Date： MAY 13, 2013

Sample Description：

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

Item Name ： Ink-Silvery.

Part No. ： 425639.

****

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 (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： 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.

****

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

****

To be continued

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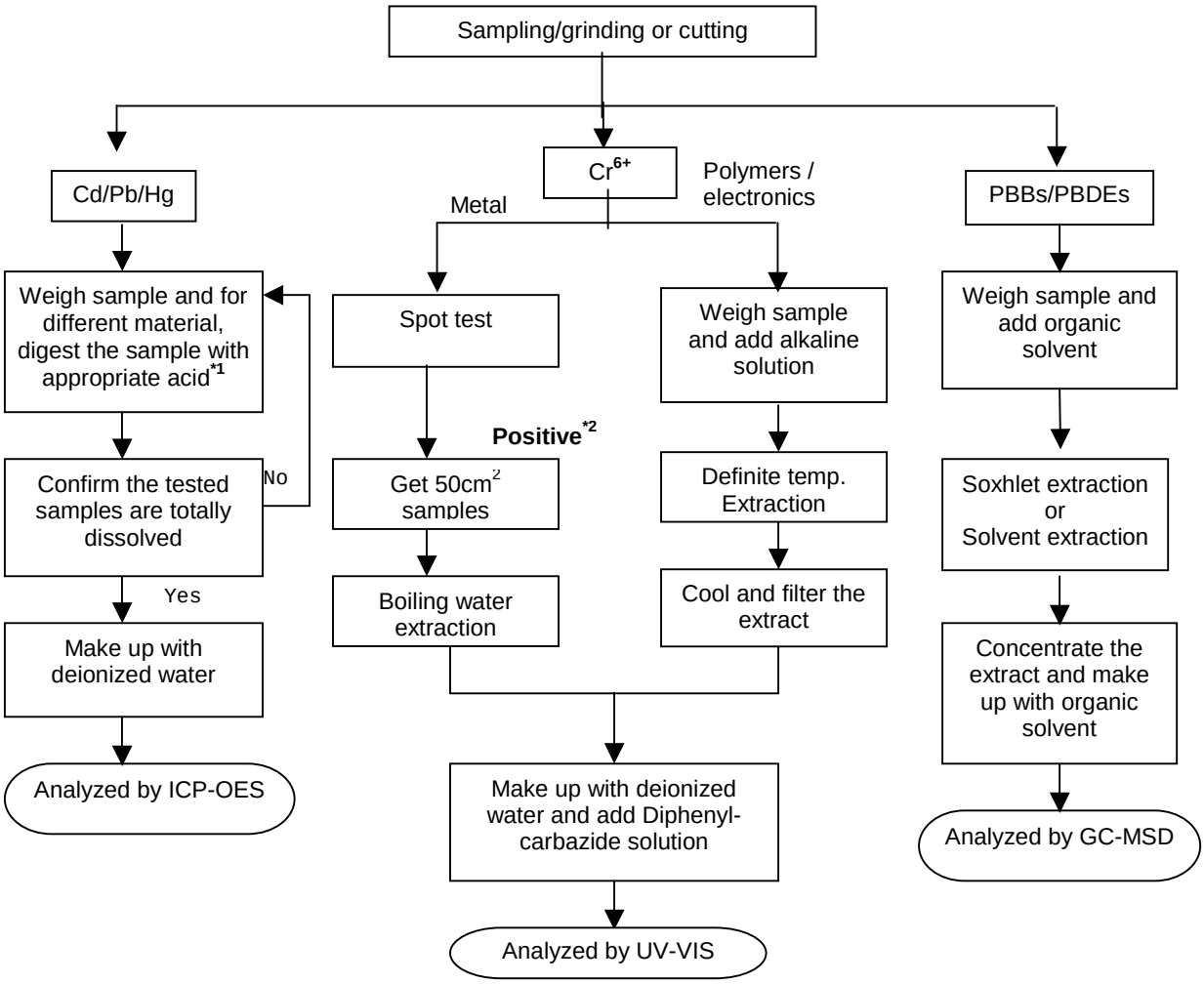
Tests Conducted

(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

2 Halogen content

(Ⅰ) Test result summary：

Testing item	Result (ppm)
Fluorine (F)	ND
Chlorine (Cl)	200
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

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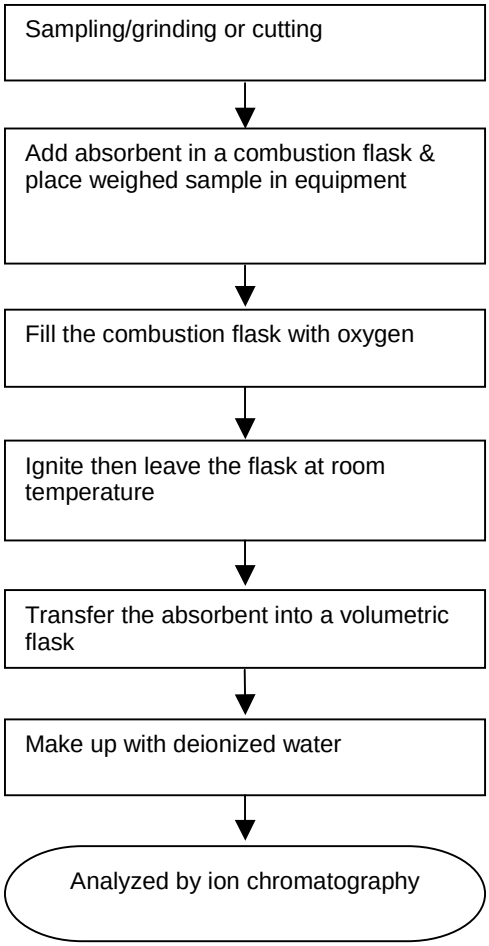
Tests Conducted

Test for halogen content
REFERENCE STANDARD：EN 14582



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To be continued

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Tests Conducted

3 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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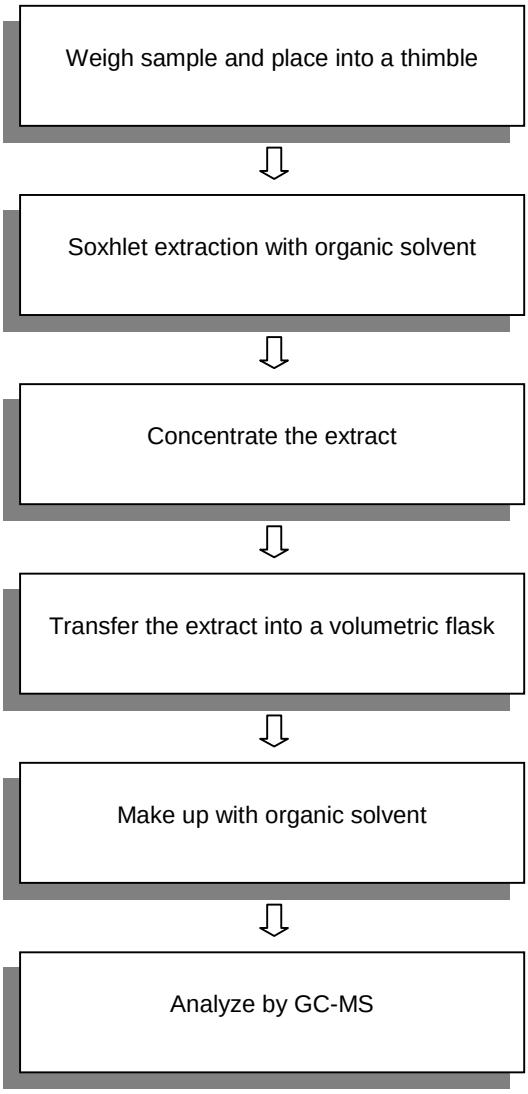
Tests Conducted

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content



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To be continued

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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

****

To be continued

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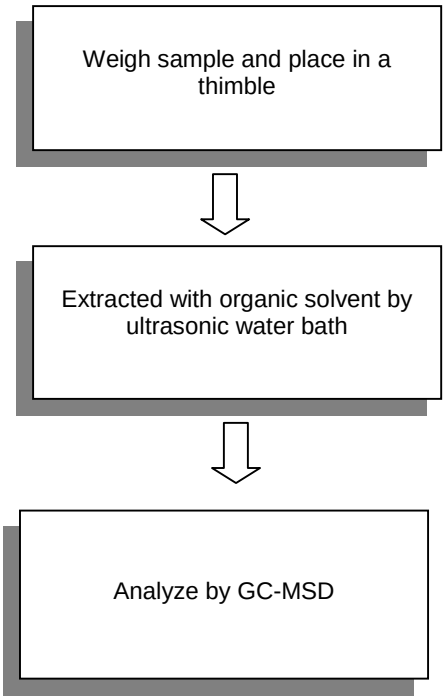
Tests Conducted
Measurement Flowchart:

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



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Tests Conducted

5 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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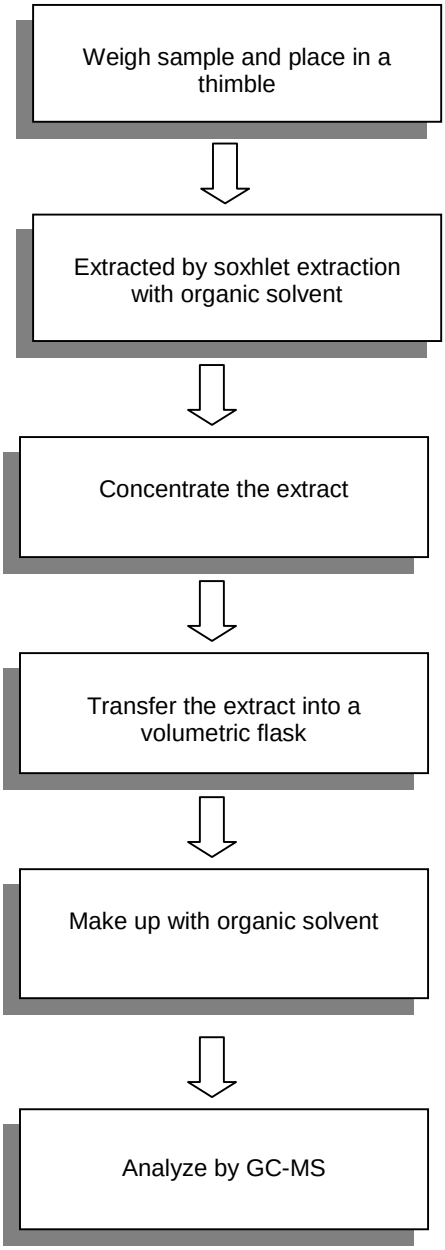
Tests Conducted

Measurement flowchart:

Test for phthalate content (For EN 14372)



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Tests Conducted

Picture Of Sample

Date sample received：May 6, 2013
Testing period： May 6, 2013 to May 9, 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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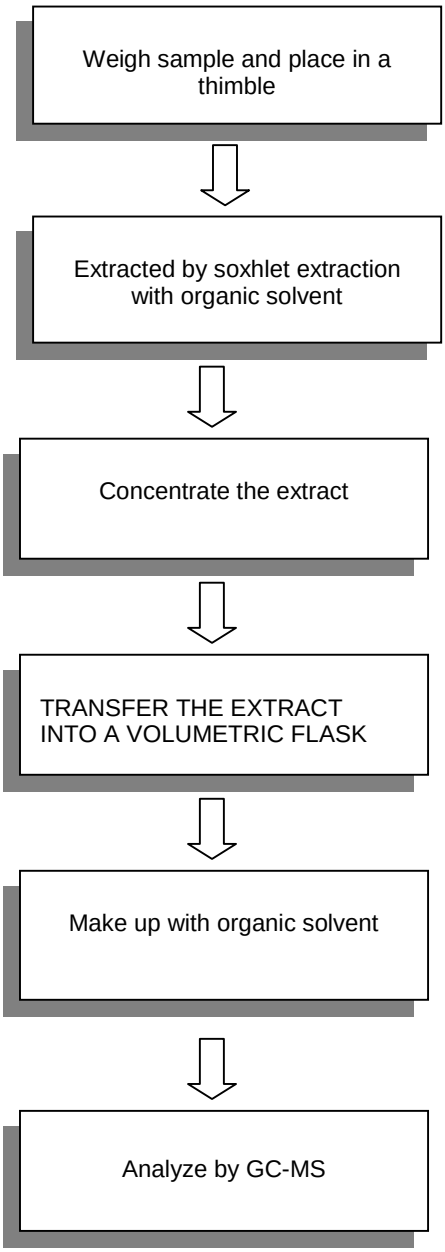
Tests Conducted
Measurement flowchart:

Test for phthalate content (EN14372)



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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)	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

****

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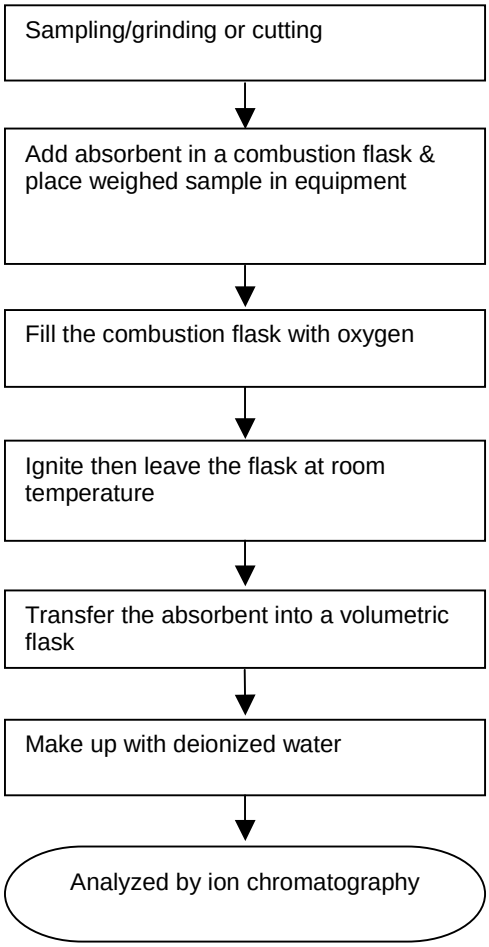
Tests Conducted

(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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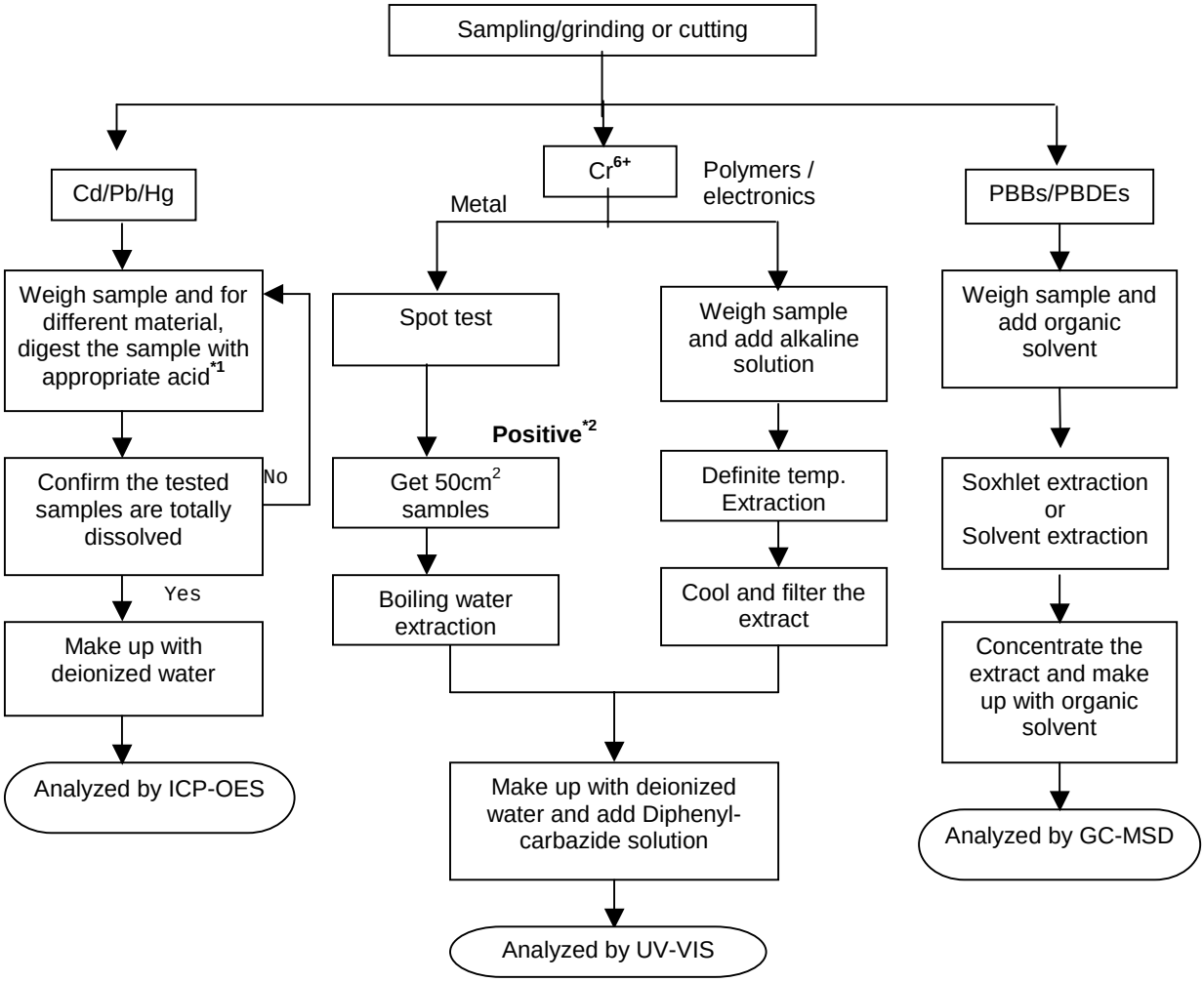
Tests Conducted

(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.

****

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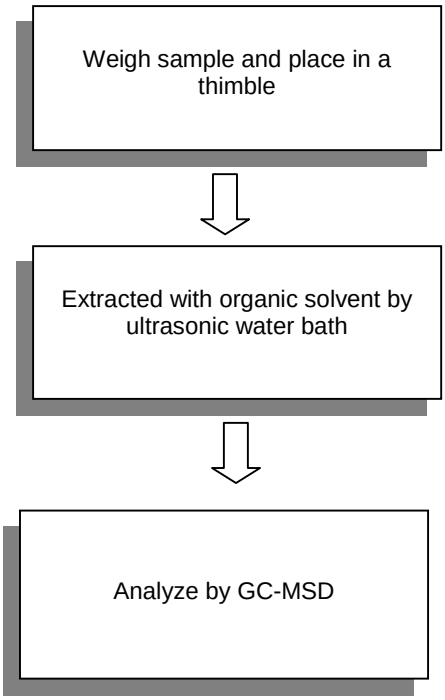
Tests Conducted
Measurement Flowchart:

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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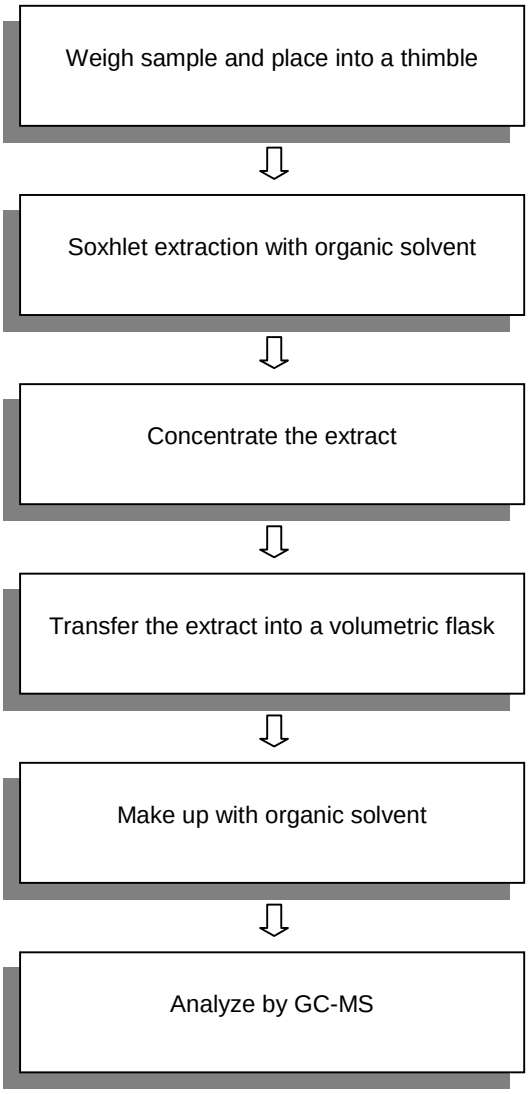
Tests Conducted

Measurement flowchart:

Test for HBCDD (hexabromocyclododecane) content



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To be continued

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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: SHAH00345629

APPLICANT: LITTELFUSE,INC. DATE: OCT 29, 2012
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
ONE (1) SUBMITTED SAMPLE SAID TO BE **ORANGE INK.**

PART DESCRIPTION	:	INK-ORANGE.
PART NUMBER	:	425900.
DATE SAMPLE RECEIVED	:	OCTOBER.15, 2012.
DATE TEST STARTED	:	OCTOBER.15, 2012.

****

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

****

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

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TESTS CONDUCTED

1 (Ⅰ) Test Result Summary :

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

(III) Test Method:

Testing Item	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

****

TO BE CONTINUED

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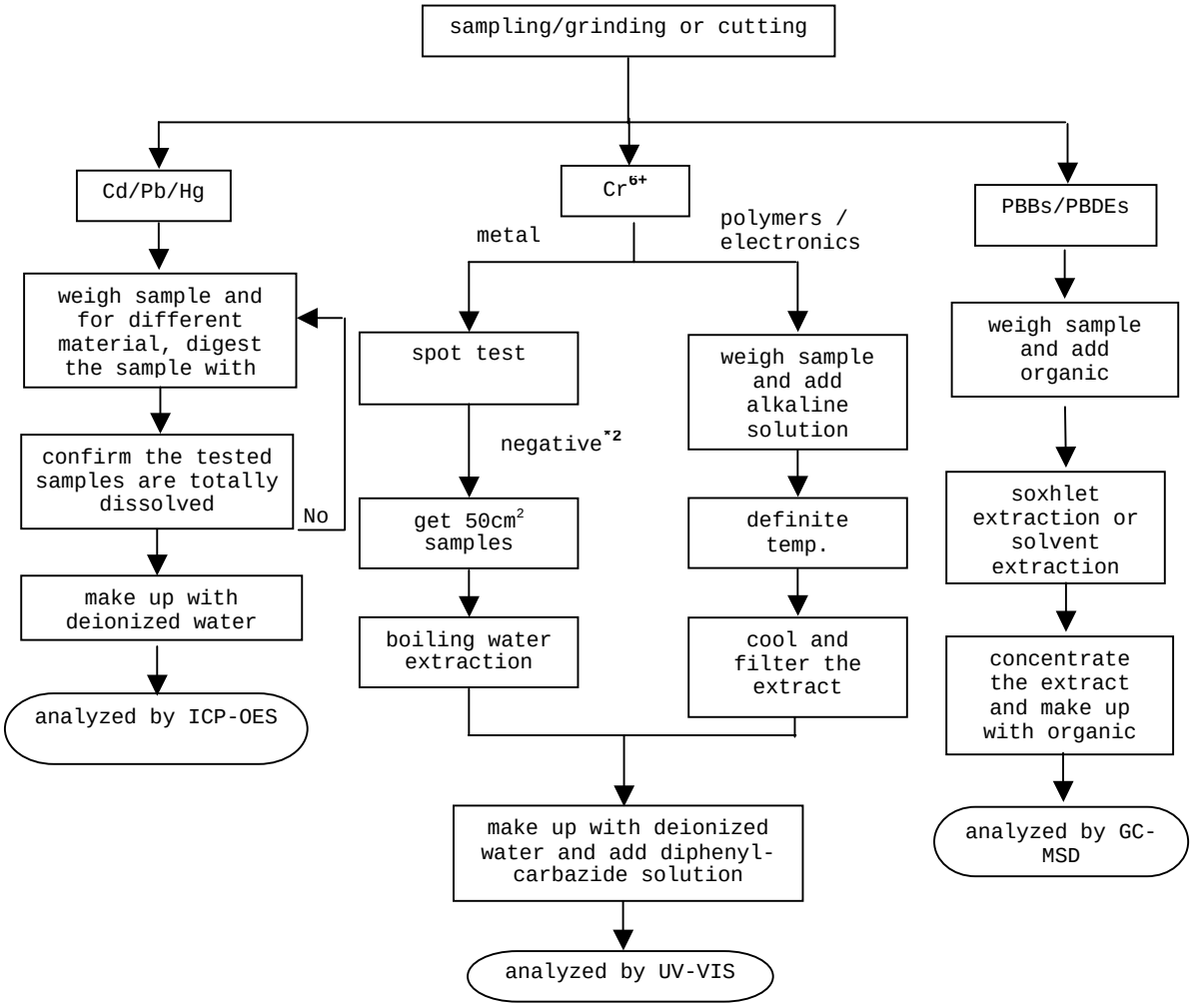
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

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



REMARKS:

*1: List of appropriate acid：

Material	Acid added for digestion
Polymers	HNO_3,HCl,HF,H_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

2 (Ⅰ) Test Result Summary :

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

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

Responsibility Of Chemist : LEAF LIU

(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

****

TO BE CONTINUED

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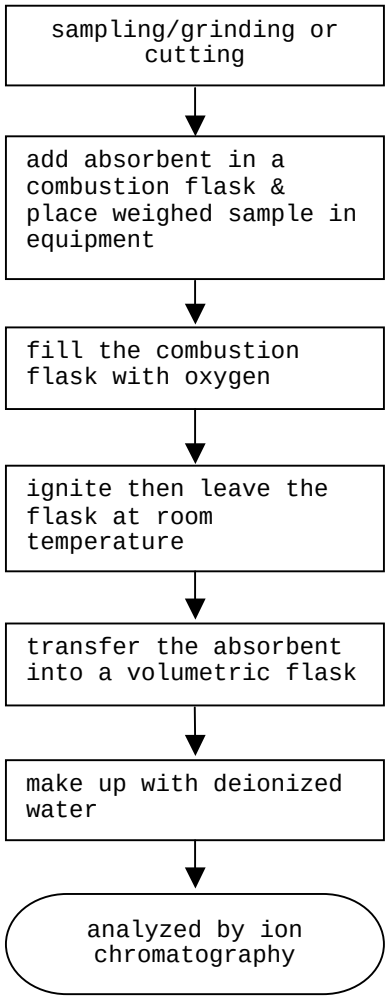
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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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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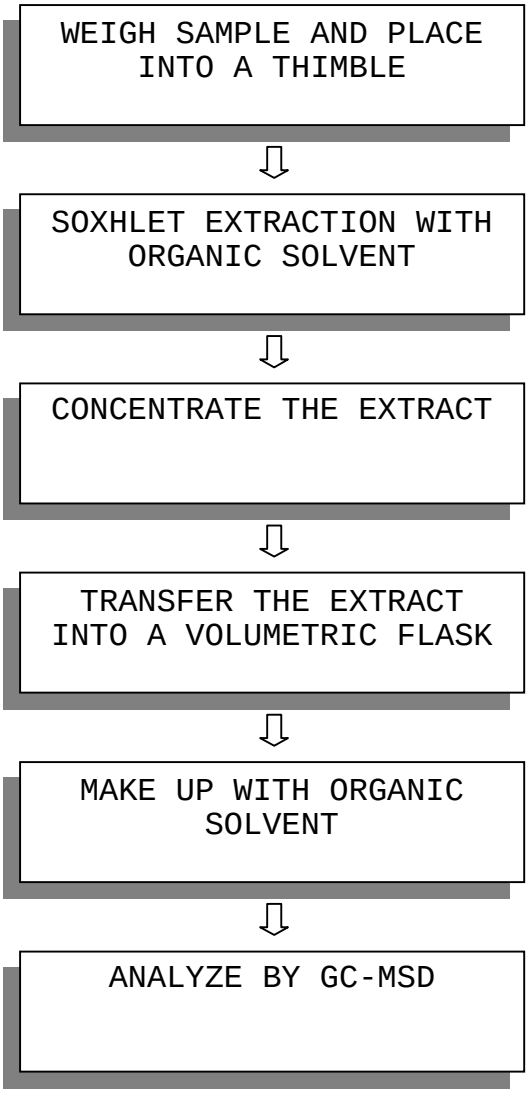
TESTS CONDUCTED

MEASUREMENT FLOWCHART

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TO BE CONTINUED

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TESTS CONDUCTED

4 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 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

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

5 PHTHALATE CONTENT TEST

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

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

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

****

TO BE CONTINUED

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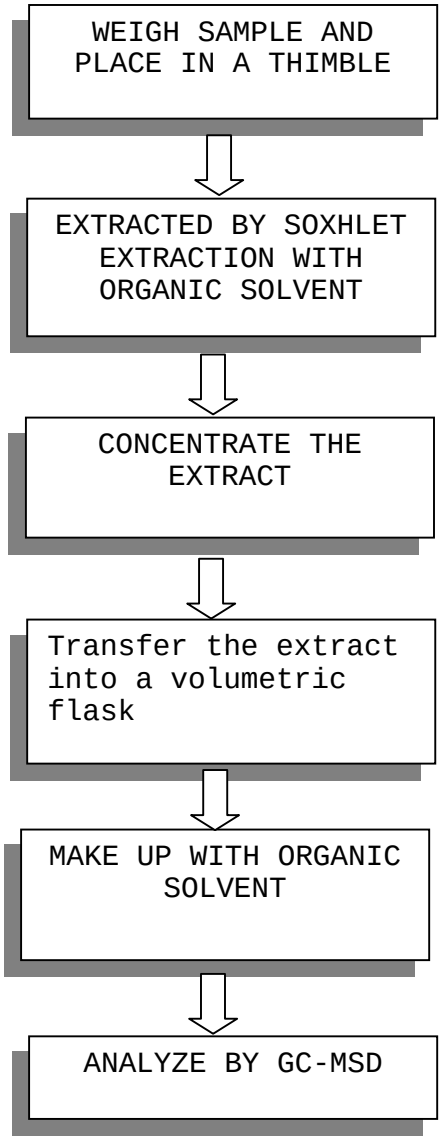
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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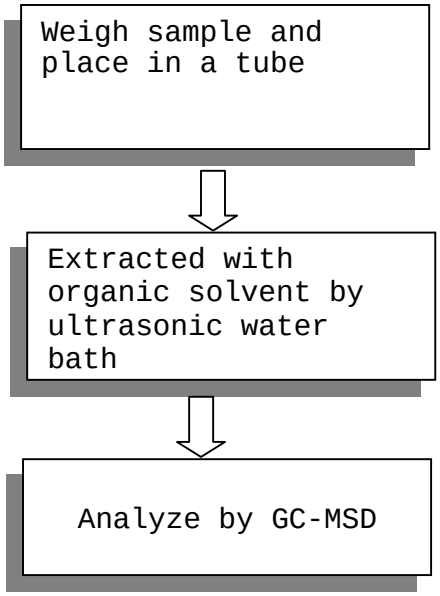
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



****

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TESTS CONDUCTED

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TEST REPORT NUMBER: SHAH00346635

APPLICANT: LITTELFUSE,INC. DATE: OCT 29, 2012
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

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

****

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

****

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

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TESTS CONDUCTED

1 (Ⅰ) Test Result Summary :

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

(Ⅲ) Test Method:

Testing Item	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

****

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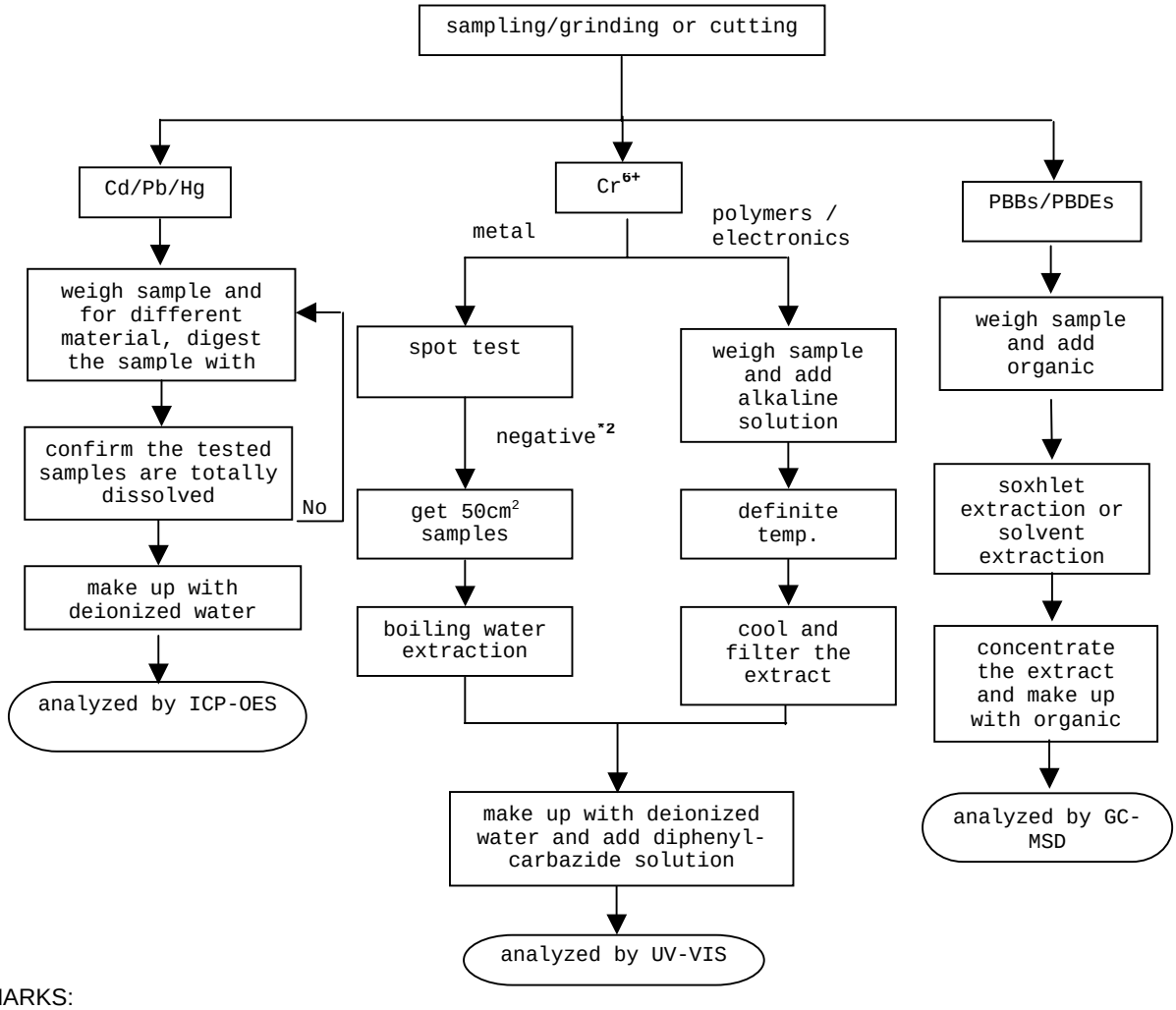
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

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

Reference Standard: IEC 62321 edition 1.0:2008



REMARKS:

*1: List of appropriate acid：

Material	Acid added for digestion
Polymers	HNO_3,HCl,HF,H_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

2 (Ⅰ) Test Result Summary :

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

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

Responsibility Of Chemist : Leaf Liu

(Ⅲ) Test Method:

Testing Item	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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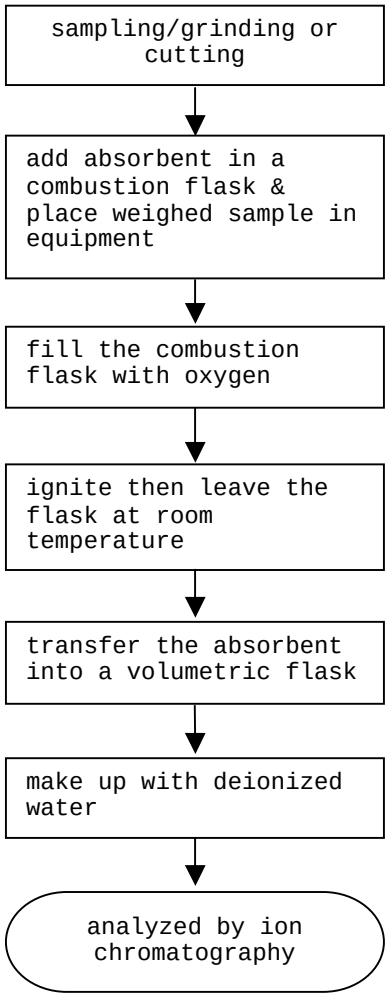
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content

Reference Standard： EN 14582



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TESTS CONDUCTED

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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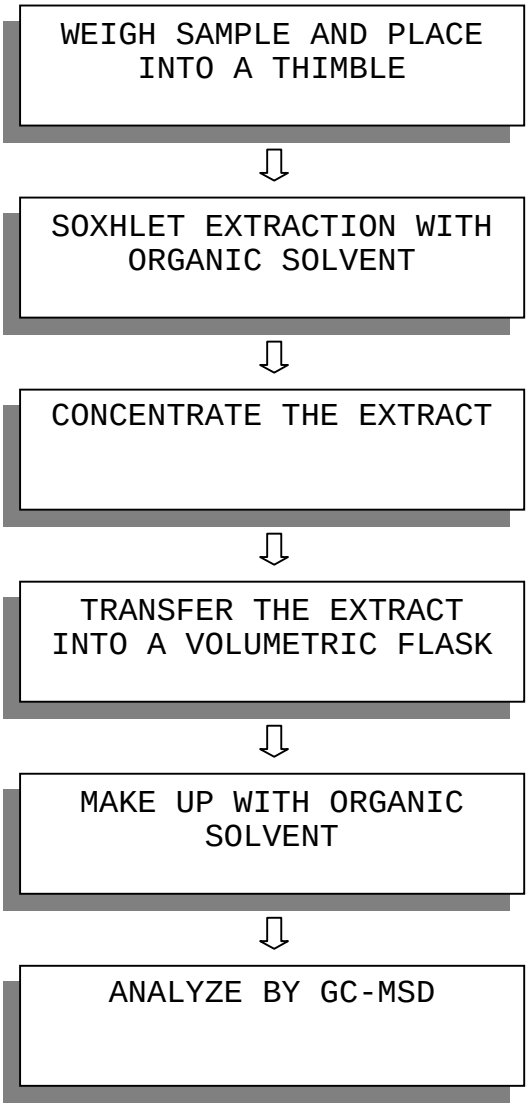
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TESTS CONDUCTED

4 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 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

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

5 PHTHALATE CONTENT TEST

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

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

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

****

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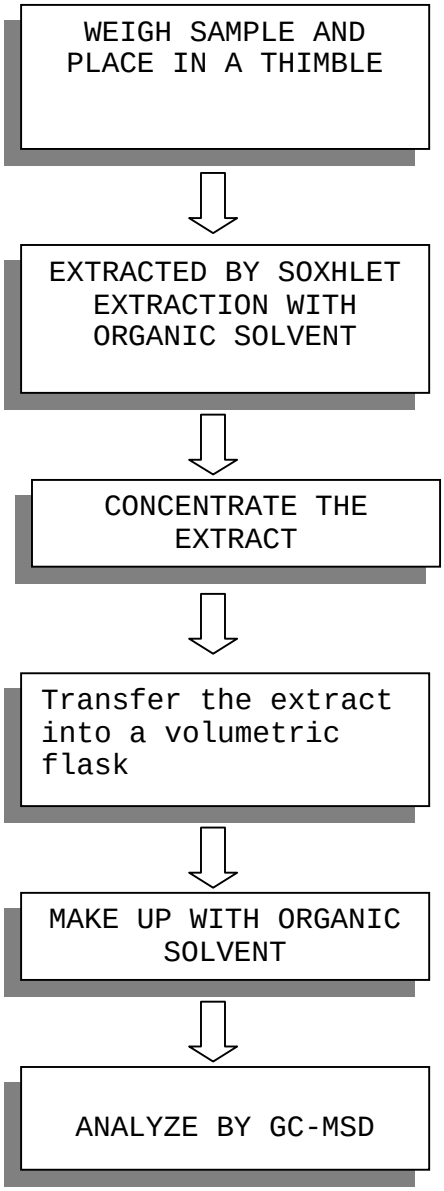
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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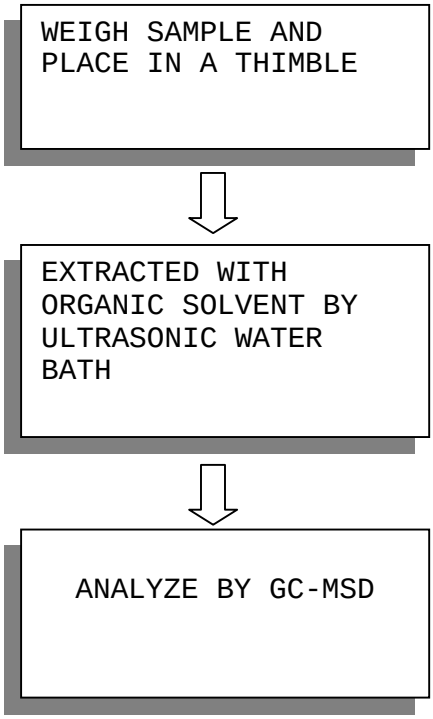
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



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TESTS CONDUCTED

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TEST REPORT NUMBER: SHAH00345635

APPLICANT: LITTELFUSE,INC. DATE: OCT 29, 2012
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
ONE (1) SUBMITTED SAMPLE SAID TO BE **BLACK INK.**

PART DESCRIPTION	:	INK-BLACK.
PART NUMBER	:	425902.
DATE SAMPLE RECEIVED	:	OCTOBER.15, 2012.
DATE TEST STARTED	:	OCTOBER.15, 2012.

****

TESTS CONDUCTED:
AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)
****

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AUTHORIZED BY：
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

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TESTS CONDUCTED

1 (Ⅰ) Test Result Summary :

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

(Ⅲ) Test Method:

Testing Item	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

****

TO BE CONTINUED

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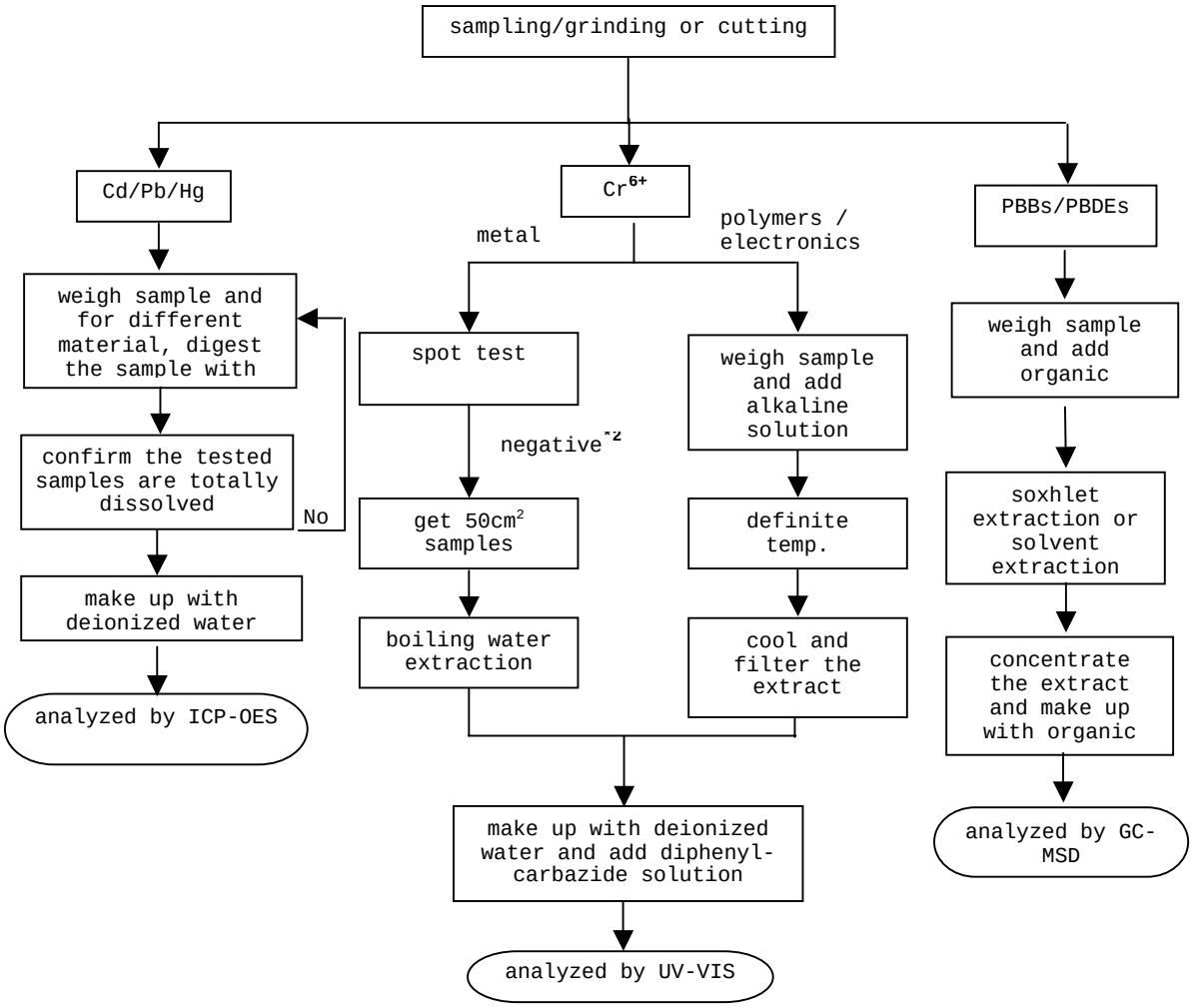
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

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



REMARKS:

*1: List of appropriate acid：

Material	Acid added for digestion
Polymers	HNO_3,HCl,HF,H_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

2 (Ⅰ) Test Result Summary :

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

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

Responsibility Of Chemist : Leaf Liu

(Ⅲ) Test Method:

Testing Item	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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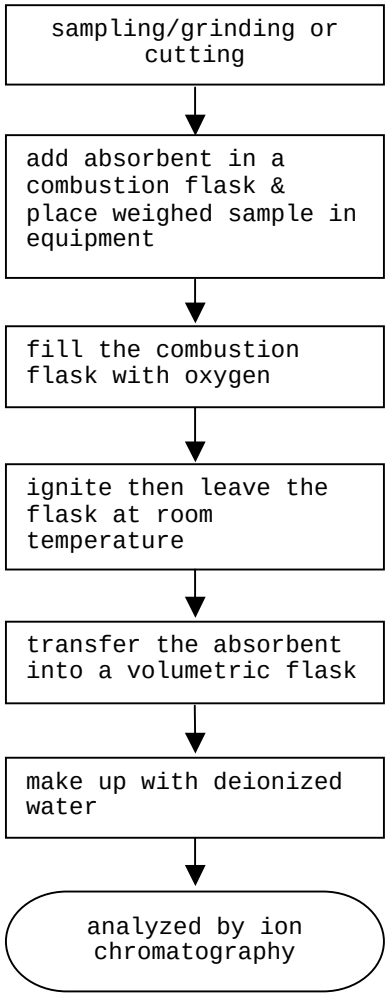
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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TESTS CONDUCTED

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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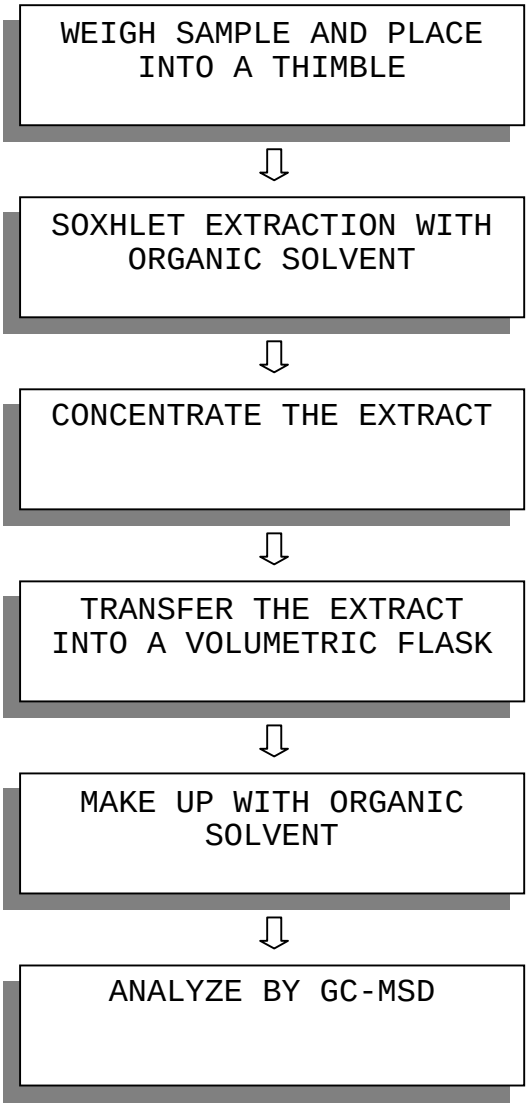
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TESTS CONDUCTED

4 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 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

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

5 PHTHALATE CONTENT TEST

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

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

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

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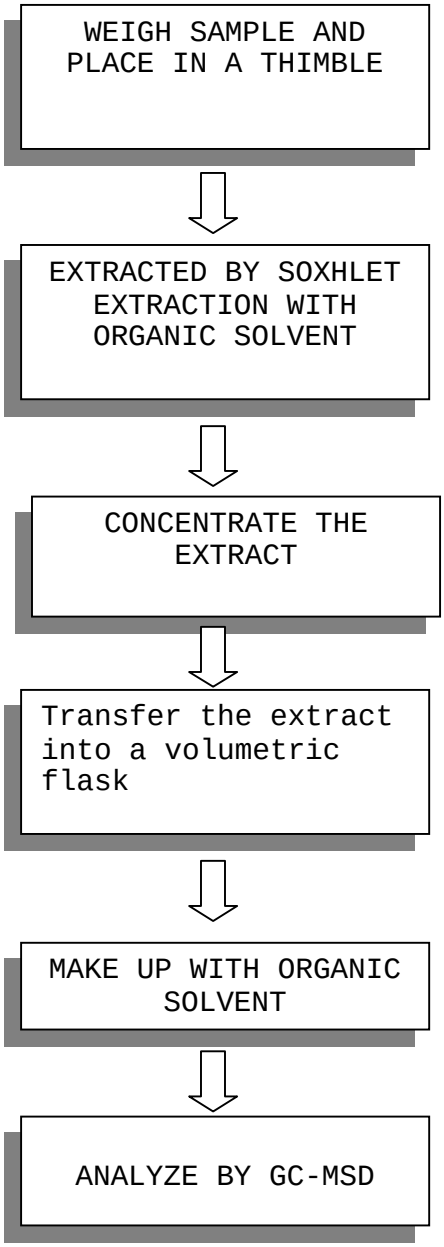
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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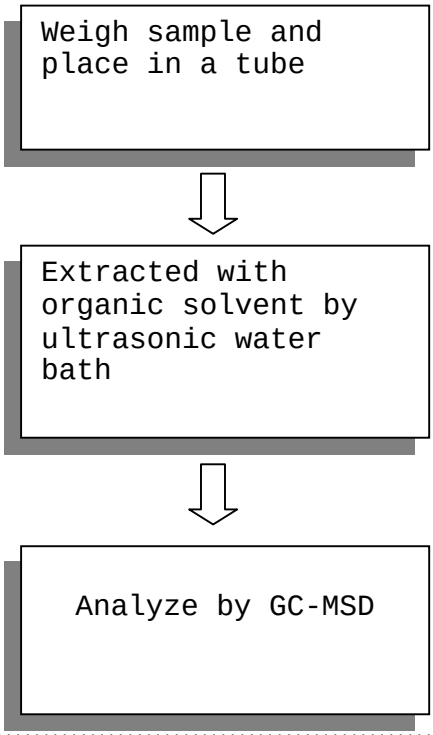
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



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TO BE CONTINUED

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TESTS CONDUCTED

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END OF REPORT

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TEST REPORT NUMBER: SHAH00345662

APPLICANT: LITTELFUSE,INC. DATE: OCT 26, 2012
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
ONE (1) SUBMITTED SAMPLE SAID TO BE **YELLOW INK.**

PART DESCRIPTION	:	INK-YELLOW.
PART NUMBER	:	425903.
DATE SAMPLE RECEIVED	:	OCTOBER.15, 2012.
DATE TEST STARTED	:	OCTOBER.15, 2012.

****

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

****

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

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TESTS CONDUCTED

1 (Ⅰ) Test Result Summary :

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

(Ⅲ) Test Method:

Testing Item	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

****

TO BE CONTINUED

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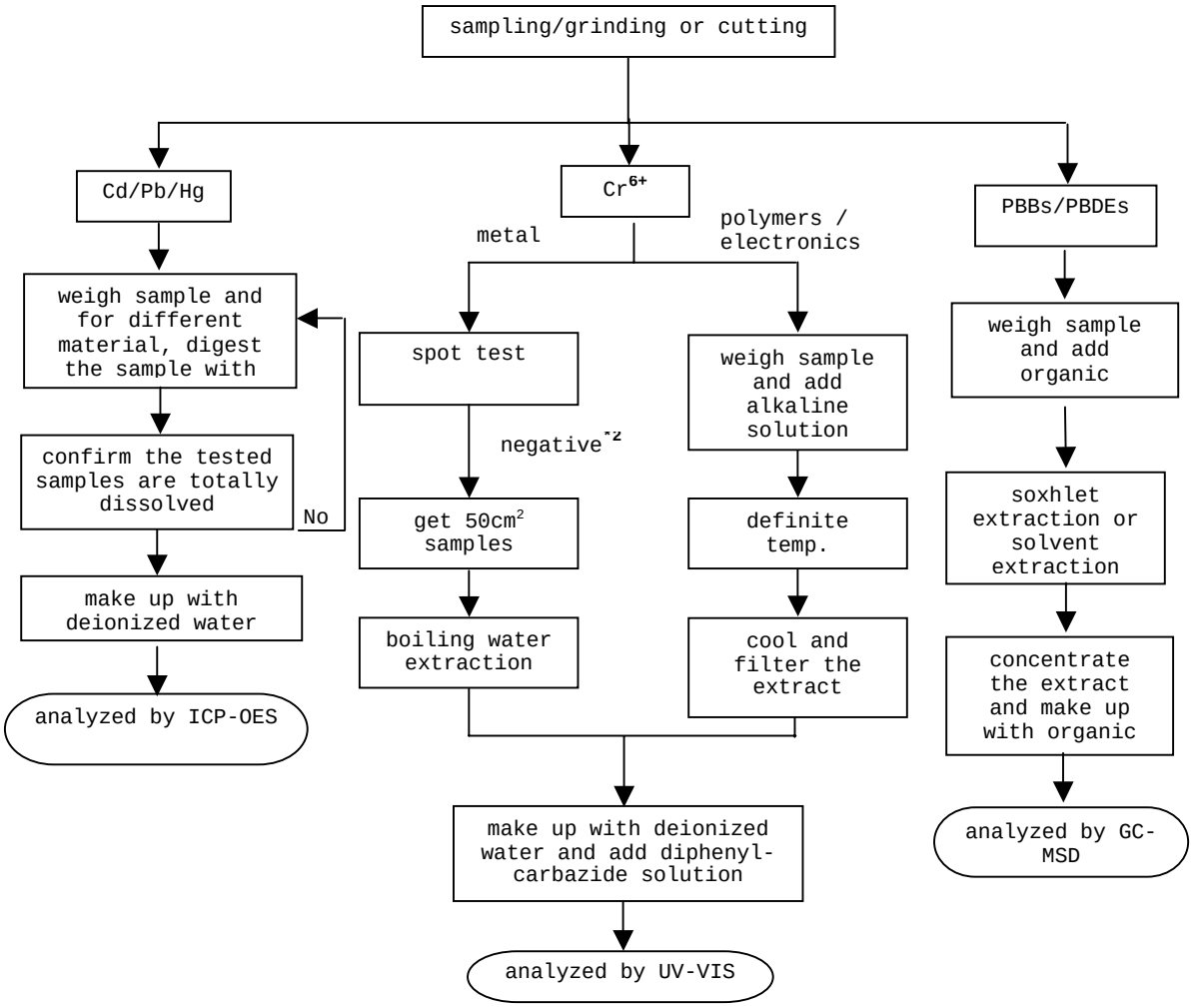
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

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



REMARKS:

*1: List of appropriate acid:

Material	Acid added for digestion
Polymers	HNO_3,HCl,HF,H_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

2 (Ⅰ) Test Result Summary :

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

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

Responsibility Of Chemist : Leaf Liu

(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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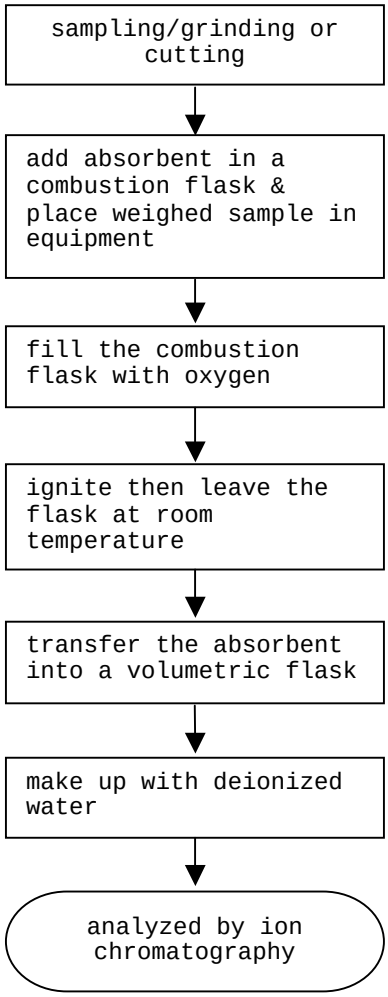
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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TESTS CONDUCTED

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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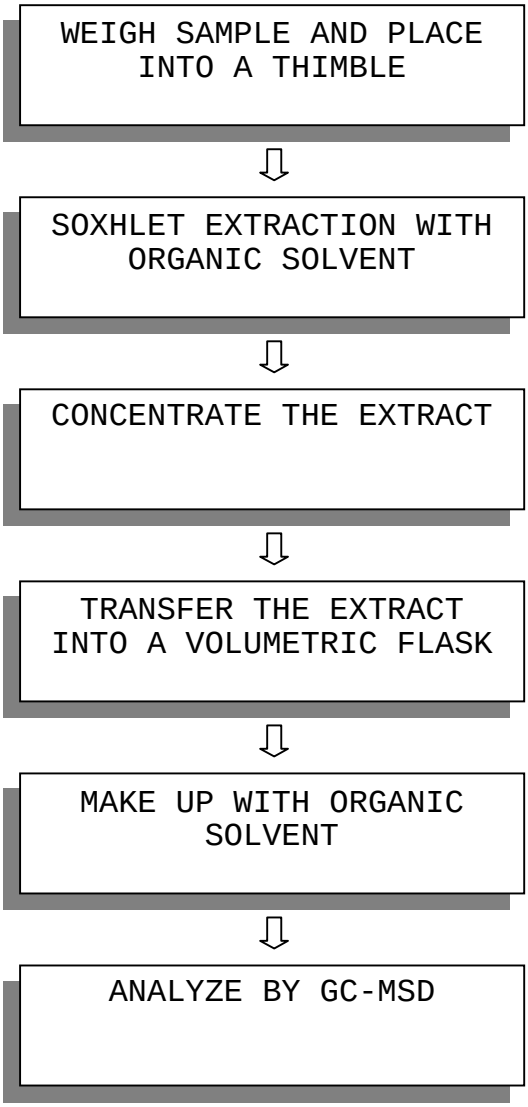
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TESTS CONDUCTED

4 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 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

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

5 PHTHALATE CONTENT TEST

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

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

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

****

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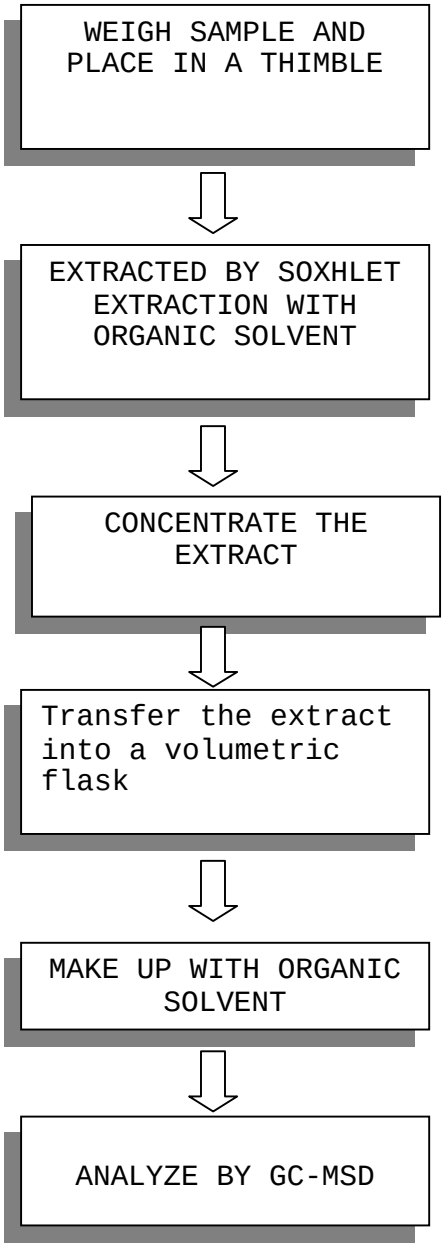
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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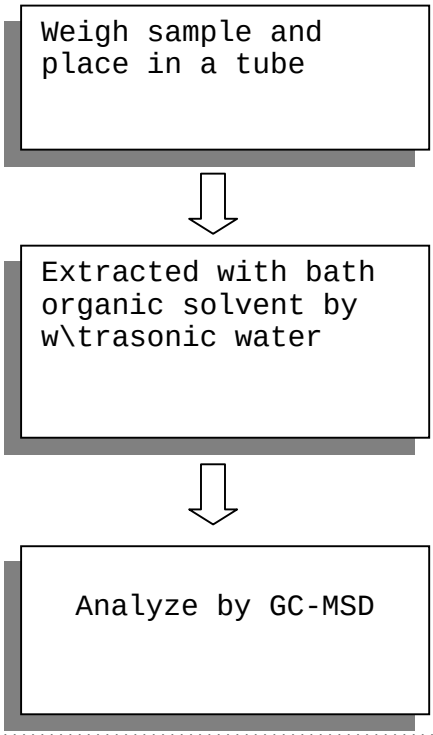
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



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TESTS CONDUCTED

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TEST REPORT NUMBER: SHAH00345415

APPLICANT: LITTELFUSE,INC. DATE: OCT 26, 2012
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
ONE (1) SUBMITTED SAMPLE SAID TO BE **BLUE INK.**

PART DESCRIPTION	:	INK-BLUE.
PART NUMBER	:	425904.
DATE SAMPLE RECEIVED	:	OCTOBER.15, 2012.
DATE TEST STARTED	:	OCTOBER.15, 2012.

****

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

****

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

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TESTS CONDUCTED

1 (Ⅰ) Test Result Summary :

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

(III) Test Method:

Testing Item	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

****

TO BE CONTINUED

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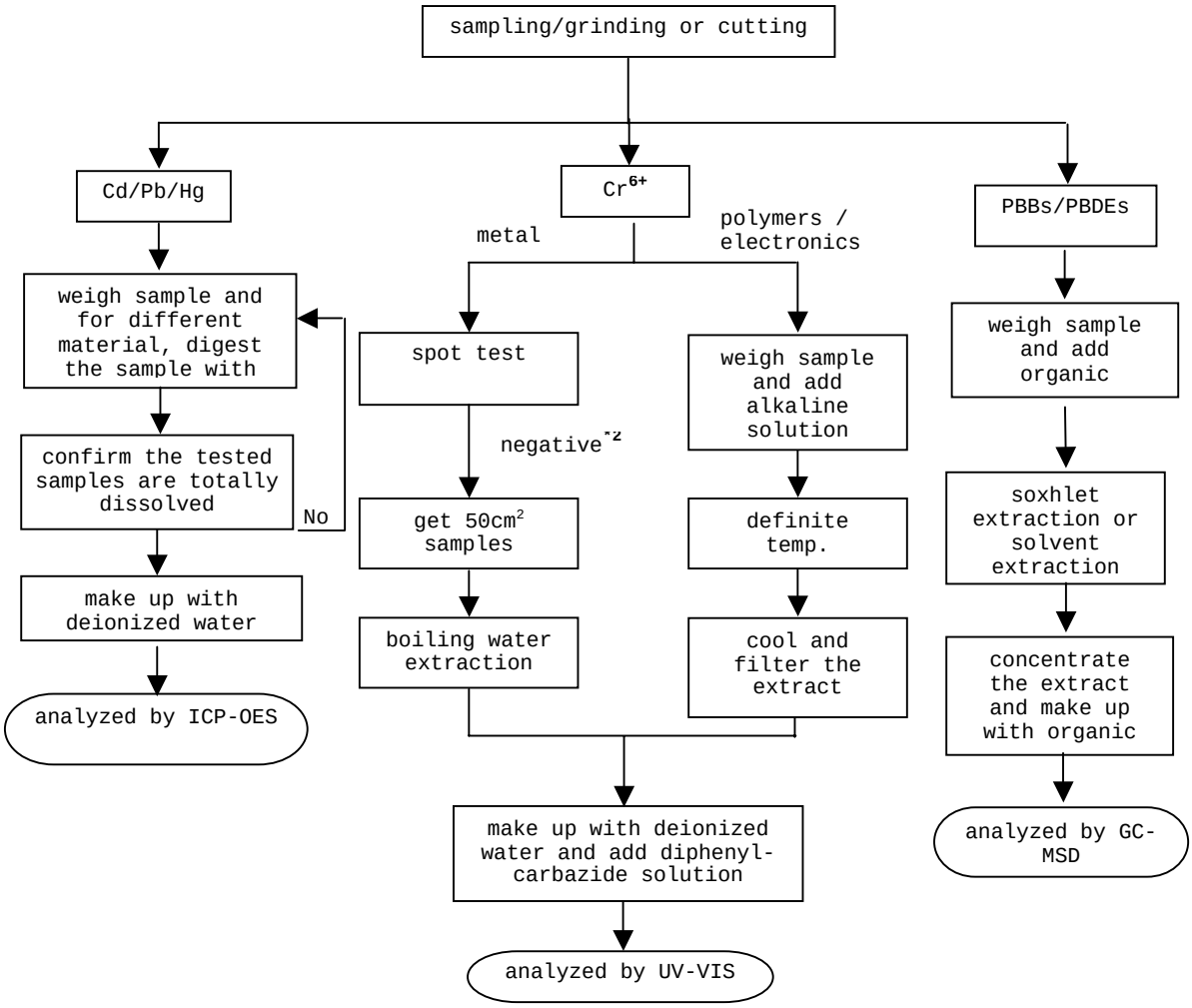
TESTS CONDUCTED
(Ⅳ) Measurement Flowchart:

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



REMARKS:

*1: List of appropriate acid：

Material	Acid added for digestion
Polymers	HNO_3,HCl,HF,H_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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Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740
www.intertek.com www.intertek.com.cn

TESTS CONDUCTED

2 (Ⅰ) Test Result Summary :

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

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

Responsibility Of Chemist : Leaf Liu

(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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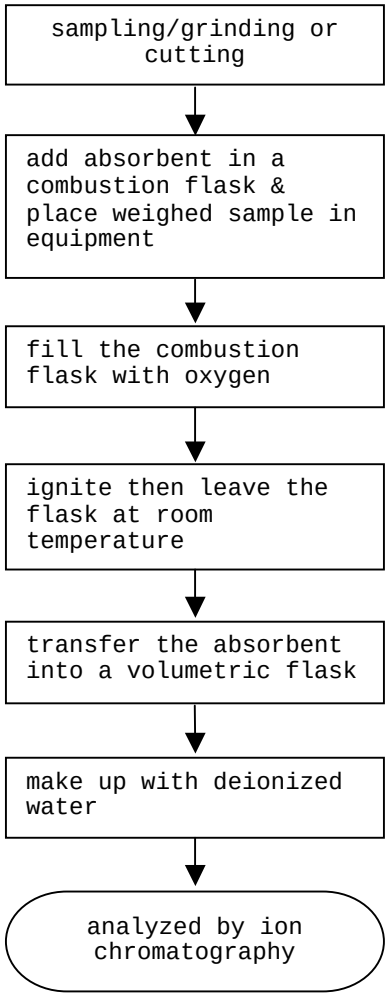
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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TESTS CONDUCTED

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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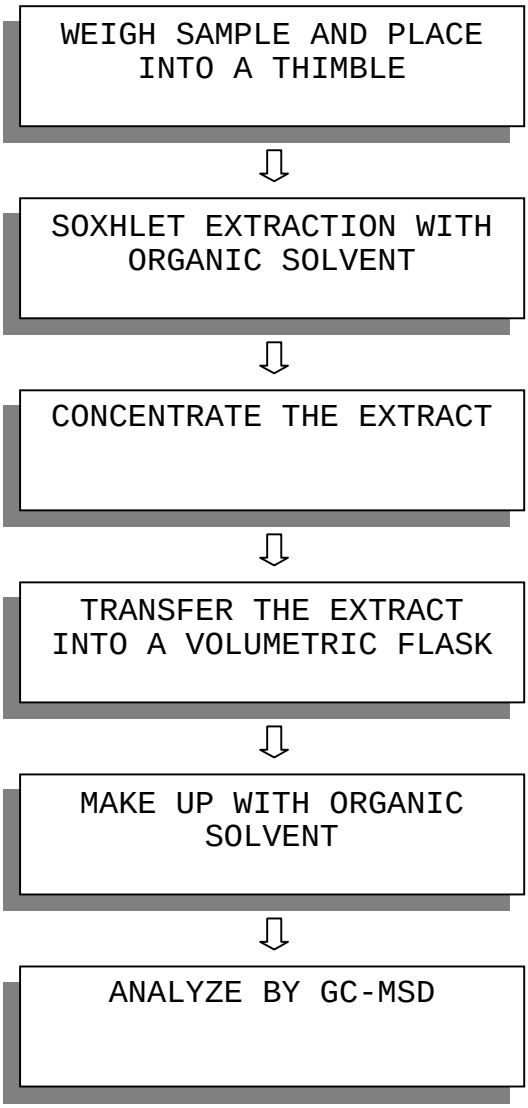
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TESTS CONDUCTED

4 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 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

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

5 PHTHALATE CONTENT TEST

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

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 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

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

****

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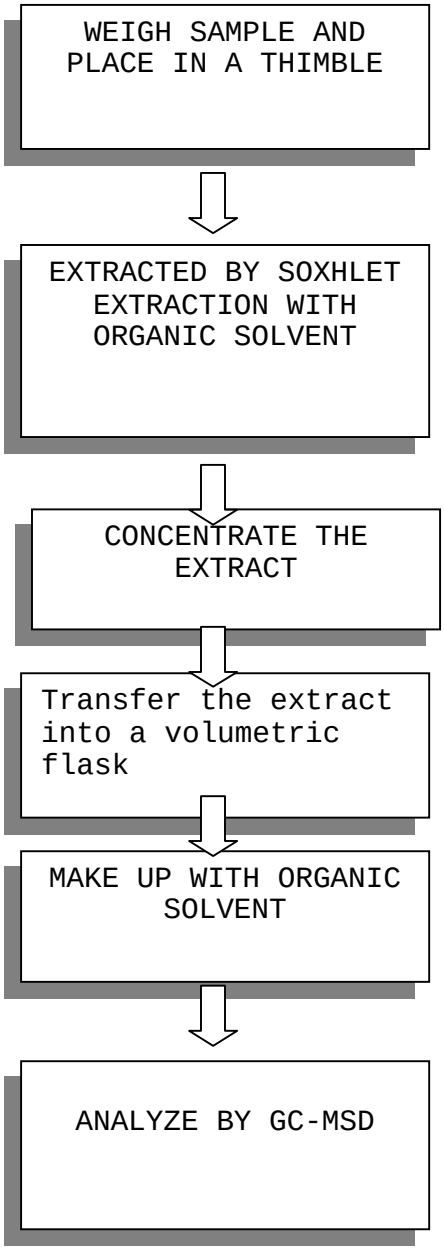
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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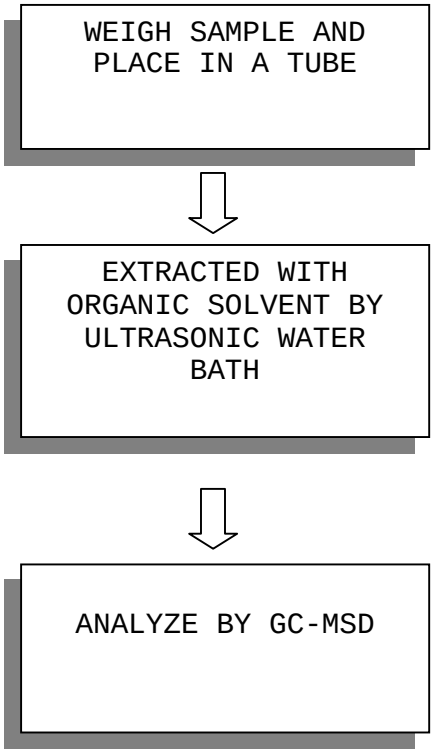
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

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



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TESTS CONDUCTED

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TEST REPORT NUMBER: SHAH00345432

APPLICANT: LITTELFUSE,INC. DATE: OCT 29, 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	:	425906.
DATE SAMPLE RECEIVED	:	OCTOBER.15, 2012.
DATE TEST STARTED	:	OCTOBER.15, 2012.

****

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

****

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

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

TESTS CONDUCTED

1 (Ⅰ) Test Result Summary :

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

(Ⅲ) Test Method:

Testing Item	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

****

TO BE CONTINUED

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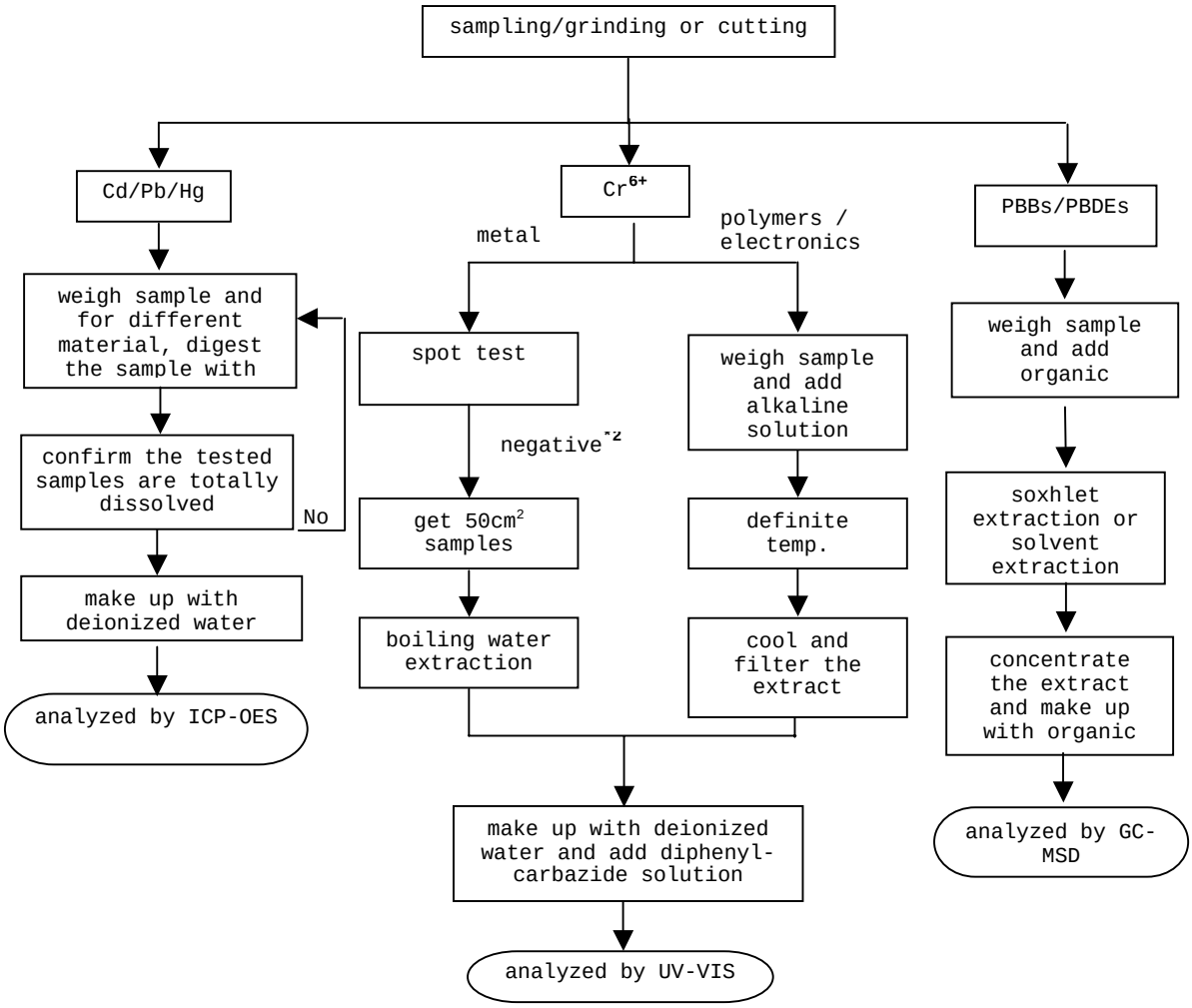
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

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

Reference Standard: IEC 62321 edition 1.0:2008



REMARKS:

*1: List of appropriate acid：

Material	Acid added for digestion
Polymers	HNO_3,HCl,HF,H_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

2 (Ⅰ) Test Result Summary :

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

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

Responsibility Of Chemist : Leaf Liu

(Ⅲ) Test Method:

Testing Item	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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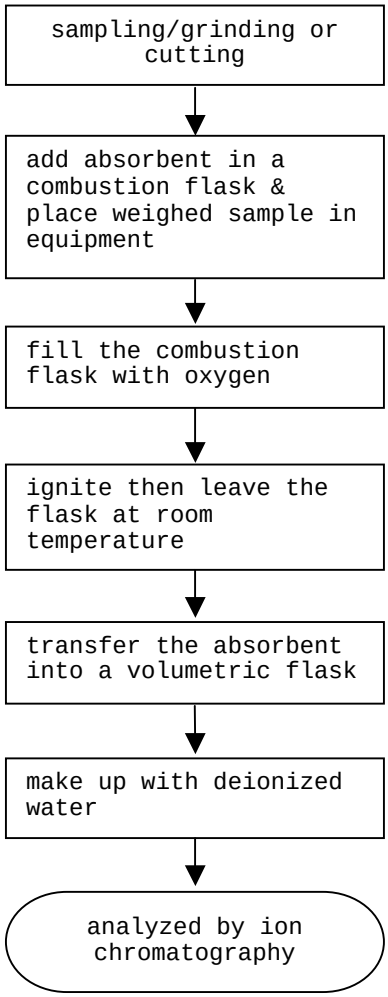
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content

Reference Standard： EN 14582



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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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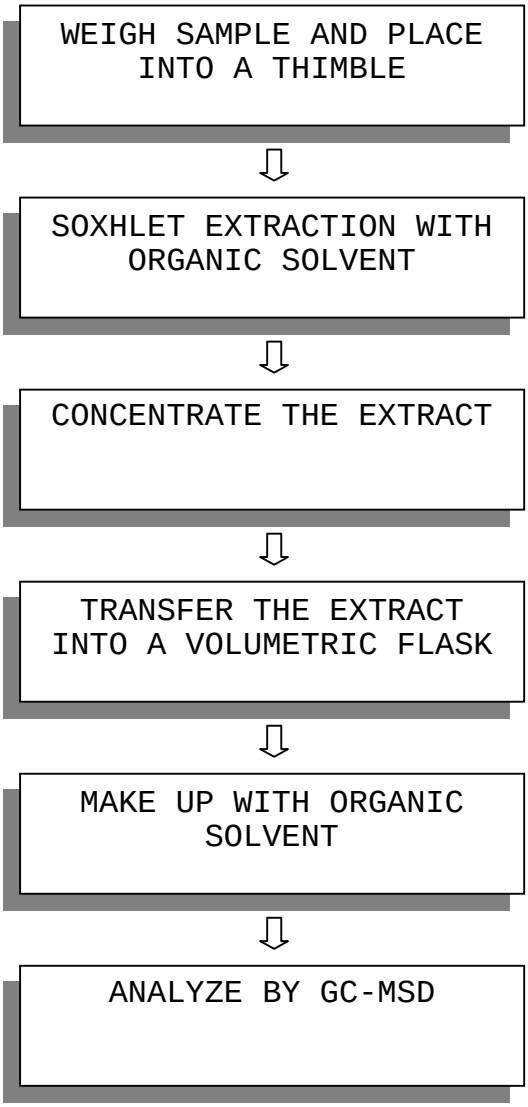
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TESTS CONDUCTED

4 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

5 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 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

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

DATE SAMPLE RECEIVED: OCT.15, 2012
TESTING PERIOD: OCT.15, 2012 TO OCT.23, 2012

****

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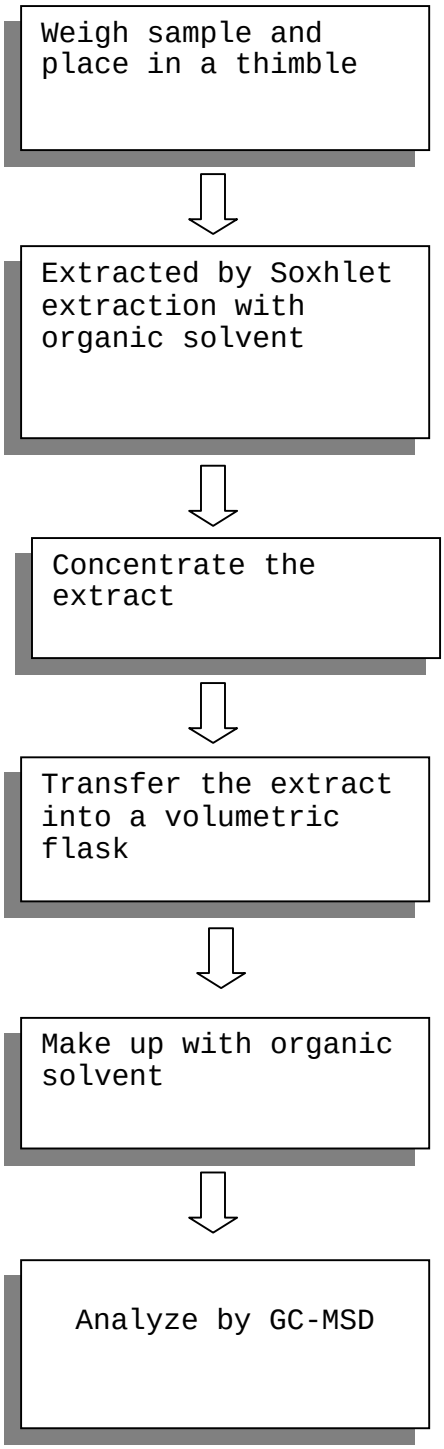
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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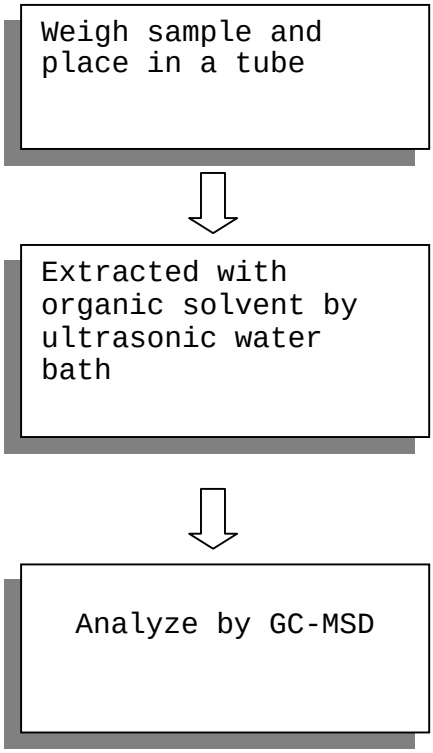
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

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



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TEST REPORT NUMBER: SHAH00345432

TESTS CONDUCTED

****

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TEST REPORT NUMBER: SHAH00345639

APPLICANT: LITTELFUSE,INC. DATE: OCT 29, 2012
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
ONE (1) SUBMITTED SAMPLE SAID TO BE **GREEN INK.**

PART DESCRIPTION	:	INK-GREEN.
PART NUMBER	:	425907.
DATE SAMPLE RECEIVED	:	OCTOBER.15, 2012.
DATE TEST STARTED	:	OCTOBER.15, 2012.

****

TESTS CONDUCTED:
AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)
****

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

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TESTS CONDUCTED

1 (Ⅰ) Test Result Summary :

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

(Ⅲ) Test Method:

Testing Item	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

****

TO BE CONTINUED

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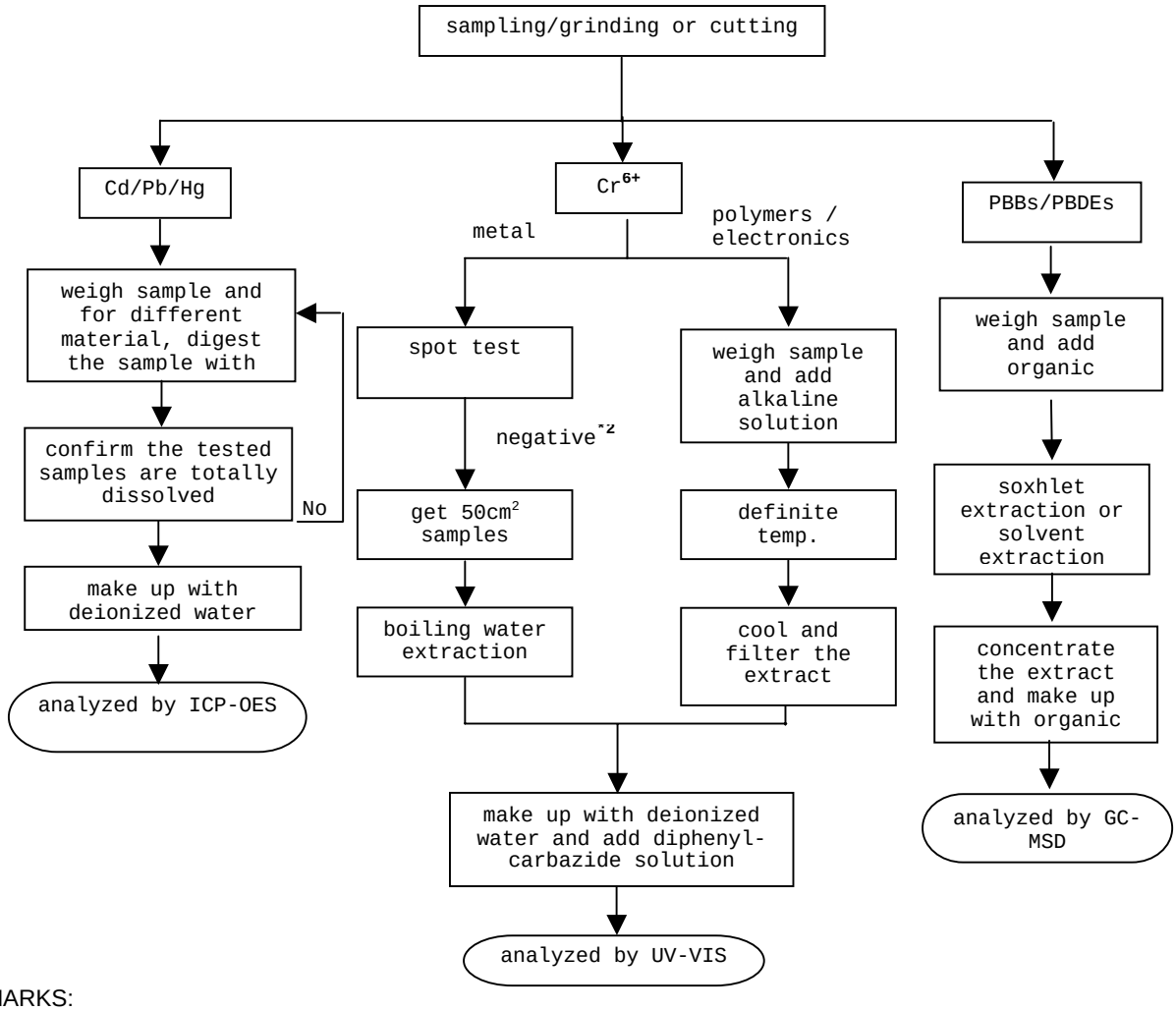
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

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



REMARKS:

*1: List of appropriate acid：

Material	Acid added for digestion
Polymers	HNO_3,HCl,HF,H_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

2 (Ⅰ) Test Result Summary :

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

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

Responsibility Of Chemist : Leaf Liu

(Ⅲ) Test Method:

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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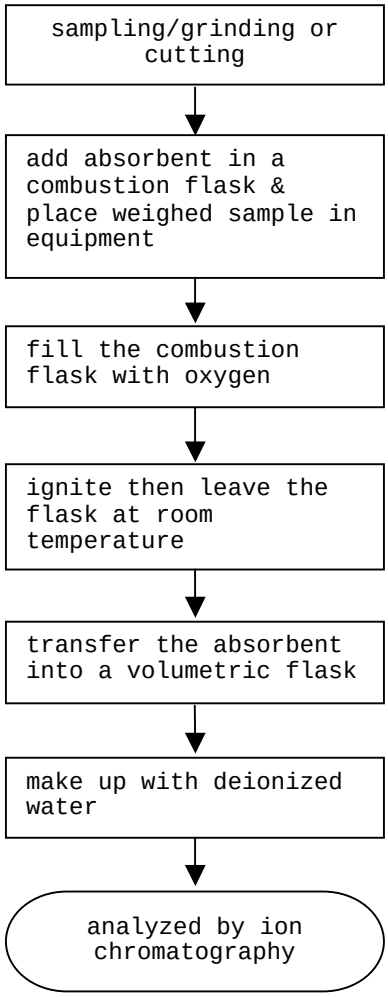
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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TESTS CONDUCTED

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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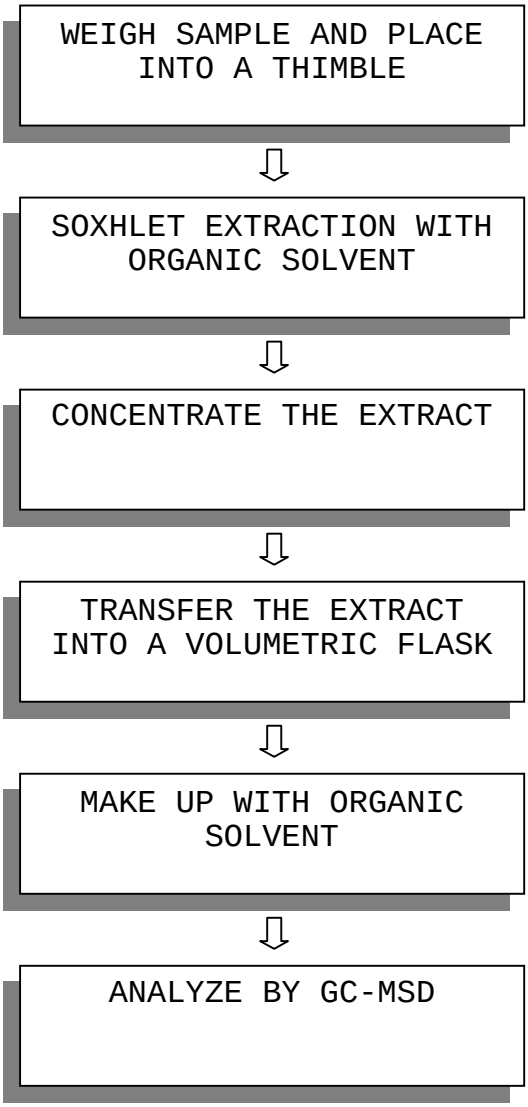
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TESTS CONDUCTED

4 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 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

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

5 PHTHALATE CONTENT TEST

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

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

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

****

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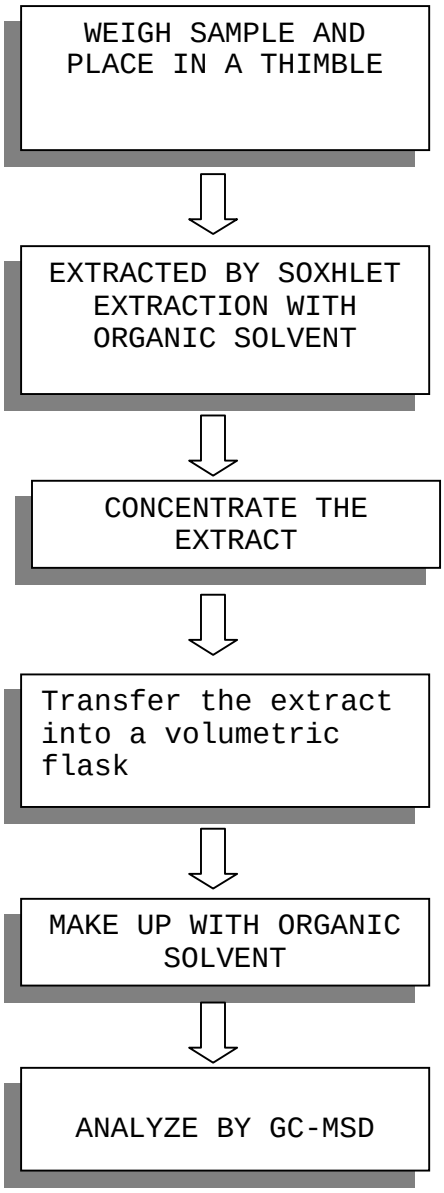
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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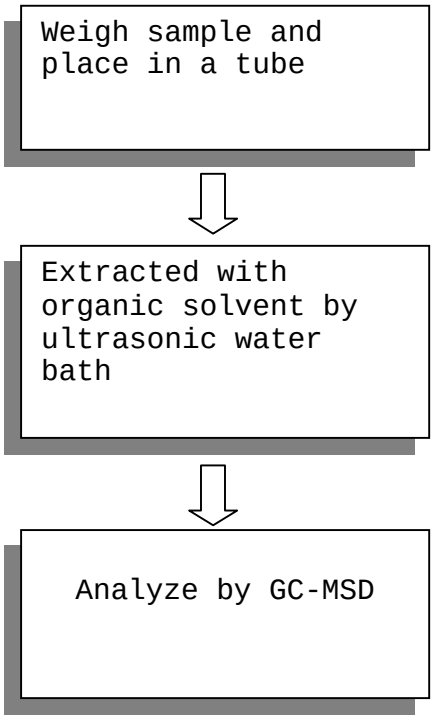
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



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TESTS CONDUCTED

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END OF REPORT

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TEST REPORT NUMBER: SHAH00345659

APPLICANT: LITTELFUSE,INC. DATE: OCT 26, 2012
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
ONE (1) SUBMITTED SAMPLE SAID TO BE:**GREY INK.**

PART DESCRIPTION	:	INK-GREY.
PART NUMBER	:	425909.
DATE SAMPLE RECEIVED	:	OCTOBER.15, 2012.
DATE TEST STARTED	:	OCTOBER.15, 2012.

****

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

****

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

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TESTS CONDUCTED

1 (Ⅰ) Test Result Summary :

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

(III) Test Method:

Testing Item	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

****

TO BE CONTINUED

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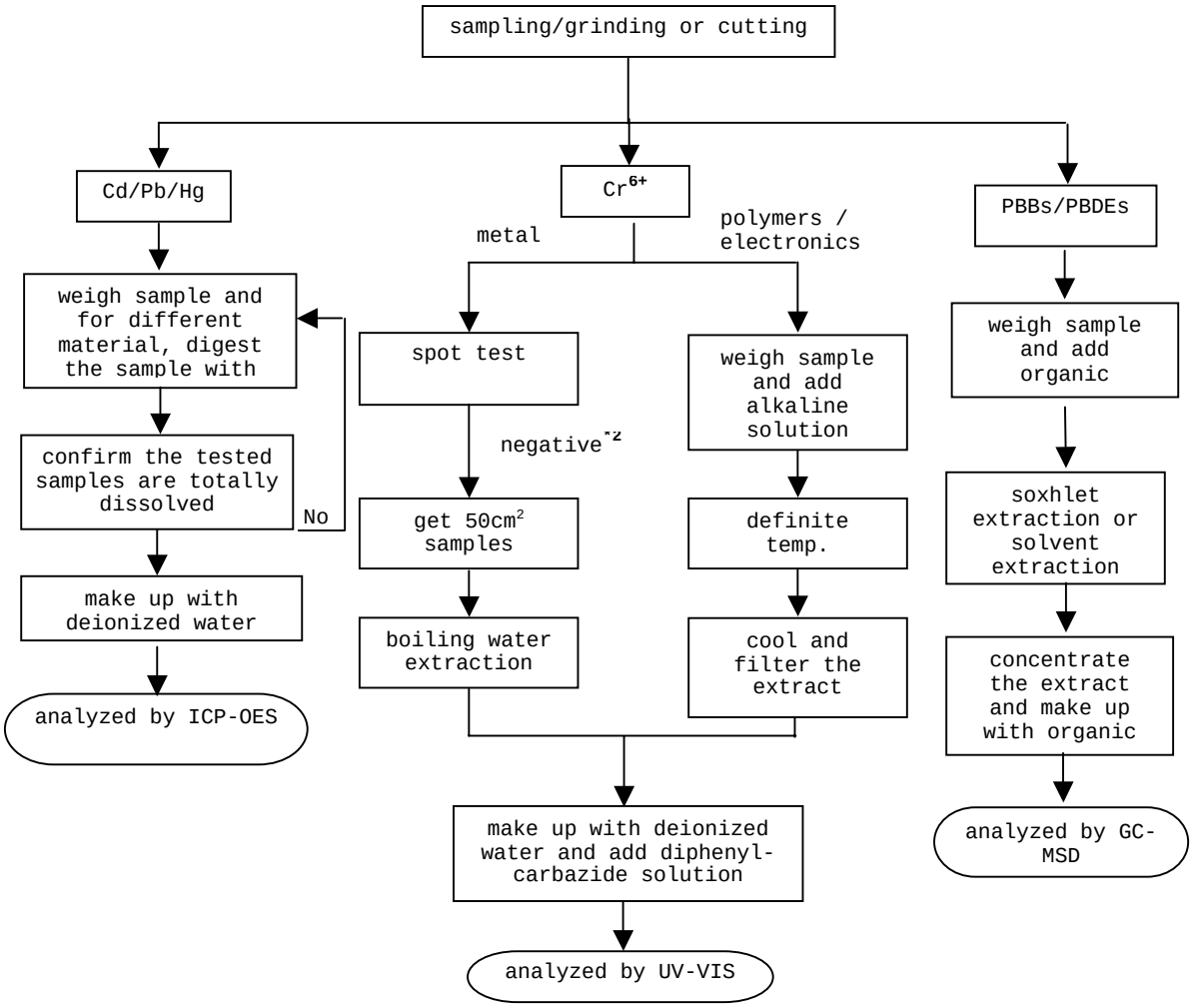
TESTS CONDUCTED
(Ⅳ) Measurement Flowchart:

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



REMARKS:

*1: List of appropriate acid：

Material	Acid added for digestion
Polymers	HNO_3,HCl,HF,H_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

2 (Ⅰ) Test Result Summary :

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

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

****

TO BE CONTINUED

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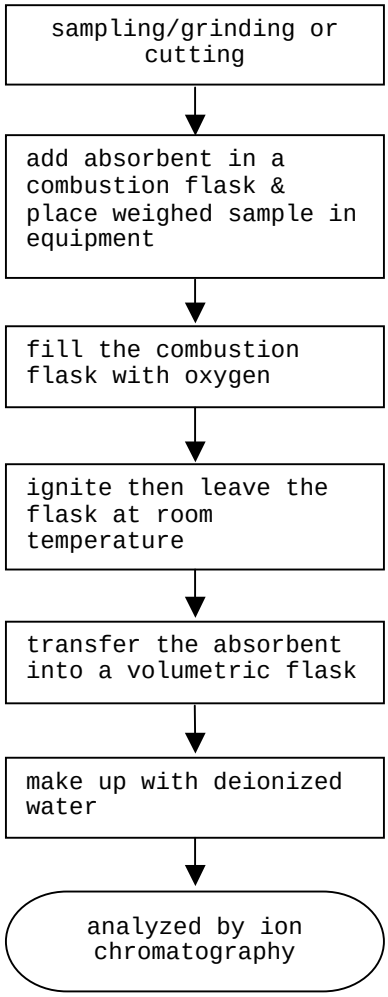
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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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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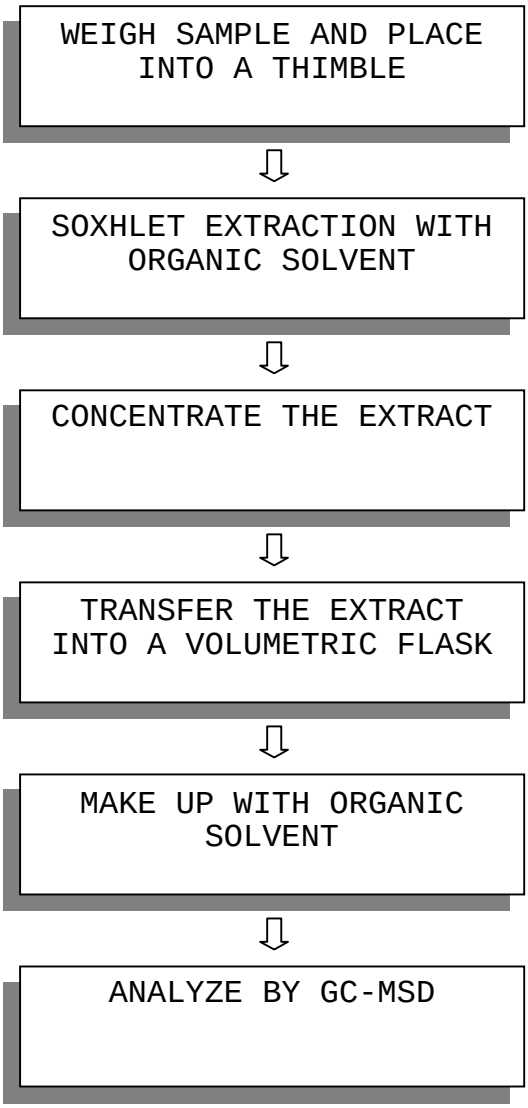
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TESTS CONDUCTED

4 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 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

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

5 PHTHALATE CONTENT TEST

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

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 FOR PROHIBITION ON SALE OF CERTAIN PRODUCTS CONTAINING SPECIFIED PHTHALATES.

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

****

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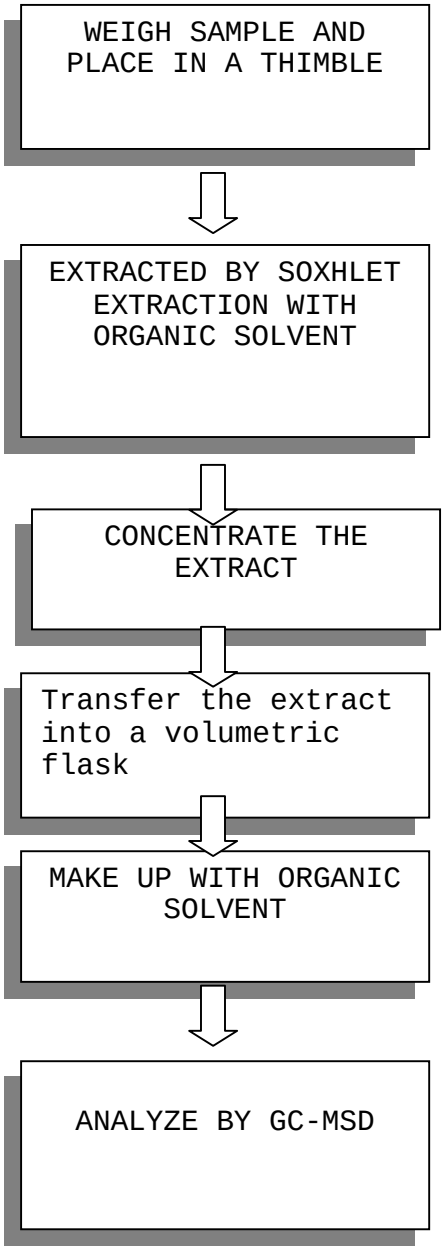
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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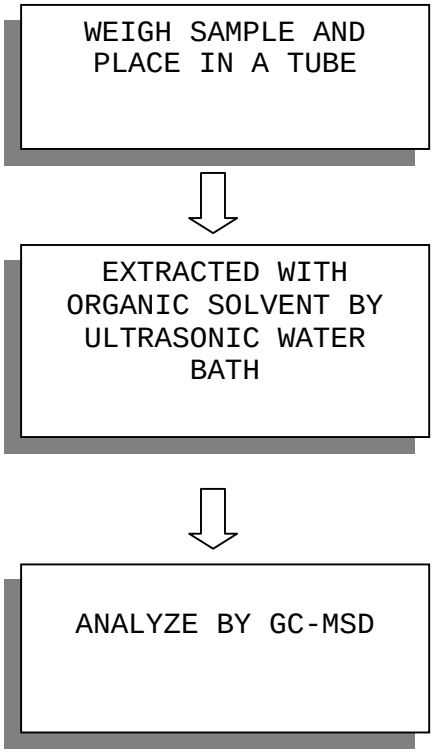
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

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



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TEST REPORT NUMBER: SHAH00345659

TESTS CONDUCTED

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TEST REPORT NUMBER: SHAH00345663

APPLICANT: LITTELFUSE,INC. DATE: OCT 29, 2012
800 E. NORTHWEST HWY
ATTN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
ONE (1) SUBMITTED SAMPLE SAID TO BE **VIOLET INK.**

PART DESCRIPTION	:	INK-VIOLET.
PART NUMBER	:	425911.
DATE SAMPLE RECEIVED	:	OCTOBER.15, 2012.
DATE TEST STARTED	:	OCTOBER.15, 2012.

****

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

****

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AUTHORIZED BY：
FOR INTERTEK TESTING SERVICES
LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

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TESTS CONDUCTED

1 (Ⅰ) Test Result Summary :

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

(Ⅲ) Test Method:

Testing Item	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

****

TO BE CONTINUED

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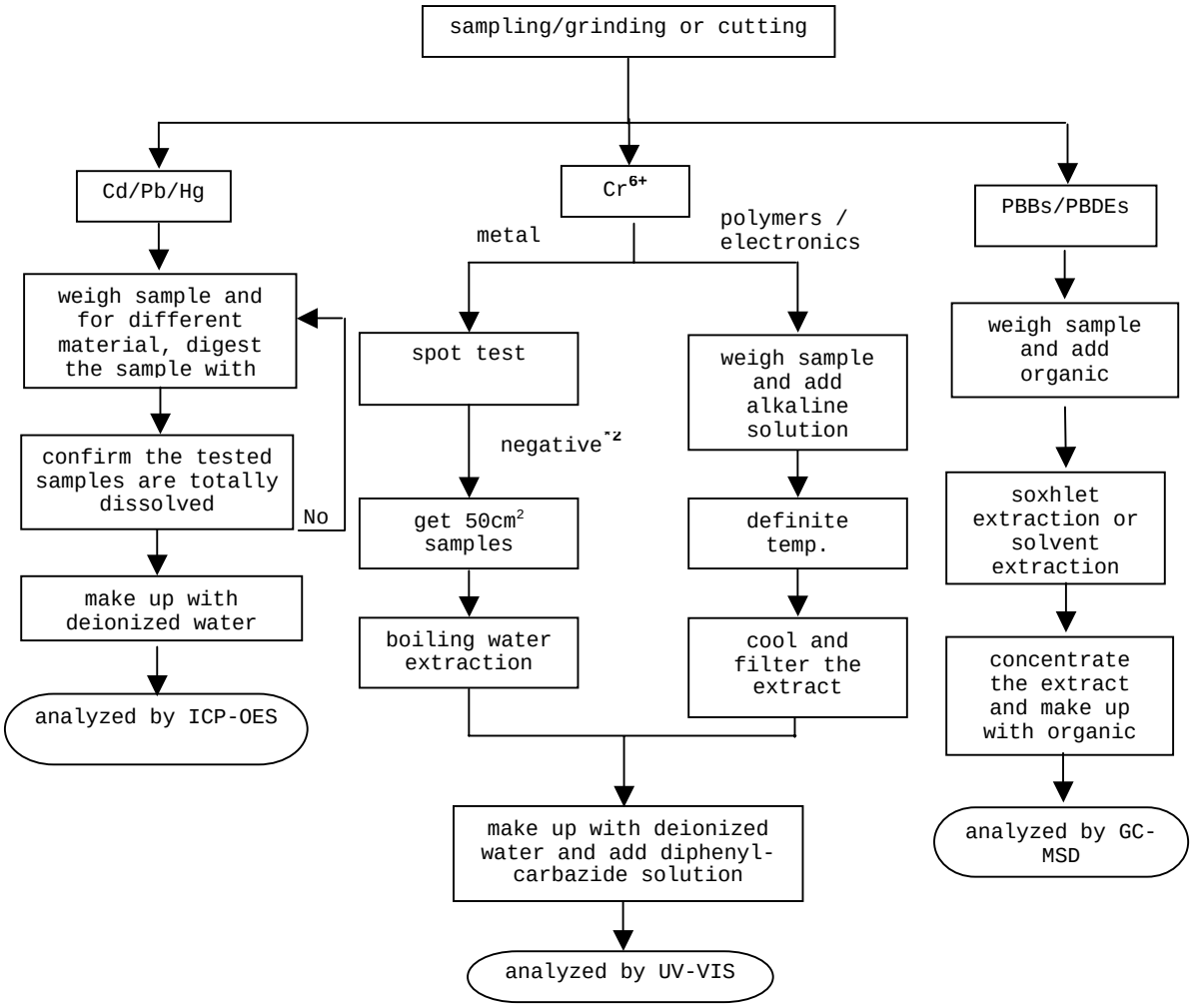
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

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



REMARKS:

*1: List of appropriate acid：

Material	Acid added for digestion
Polymers	HNO_3,HCl,HF,H_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

2 (Ⅰ) Test Result Summary :

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

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

Responsibility Of Chemist : Leaf Liu

(Ⅲ) Test Method:

Testing Item	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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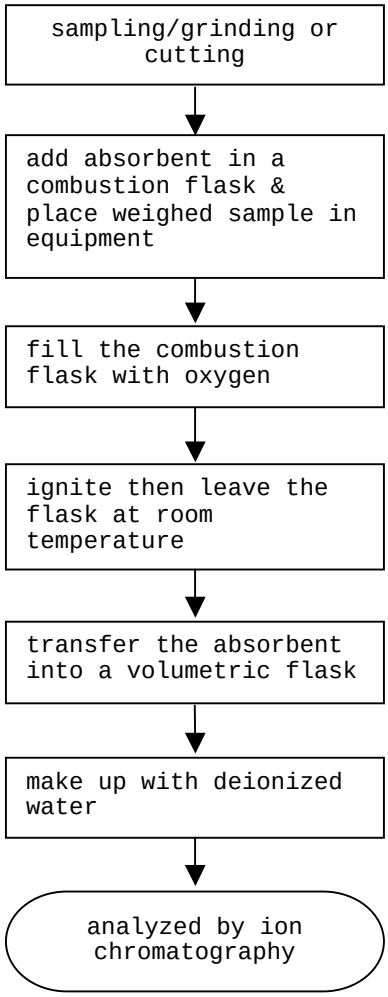
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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TESTS CONDUCTED

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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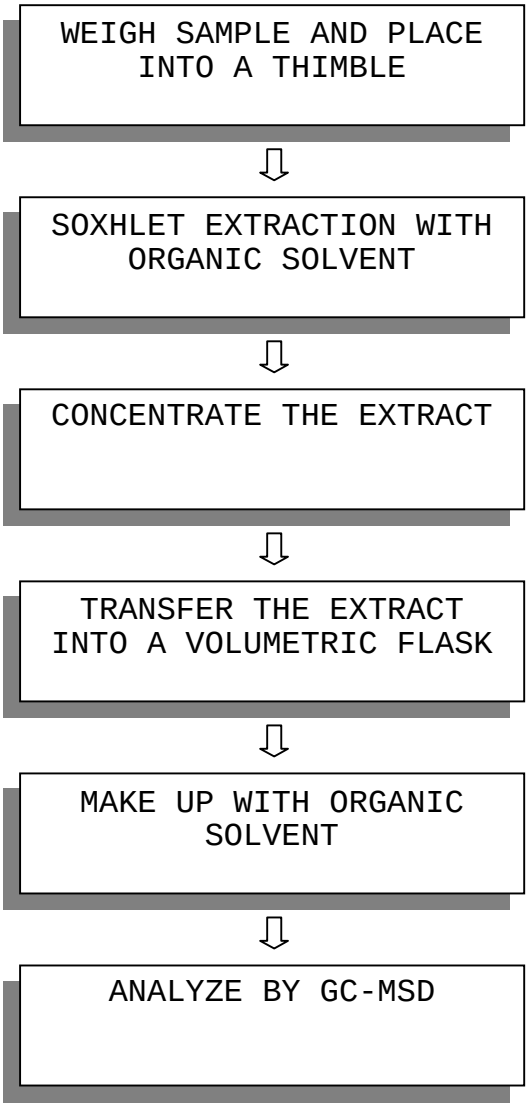
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TESTS CONDUCTED

4 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 FOR PHTHALATE CONTENT IN TOYS AND CHILDREN CARE ARTICLES.

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

5 PHTHALATE CONTENT TEST

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

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

DATE SAMPLE RECEIVED: OCT.15, 2012
TESTING PERIOD : OCT.15, 2012 TO OCT.23, 2012

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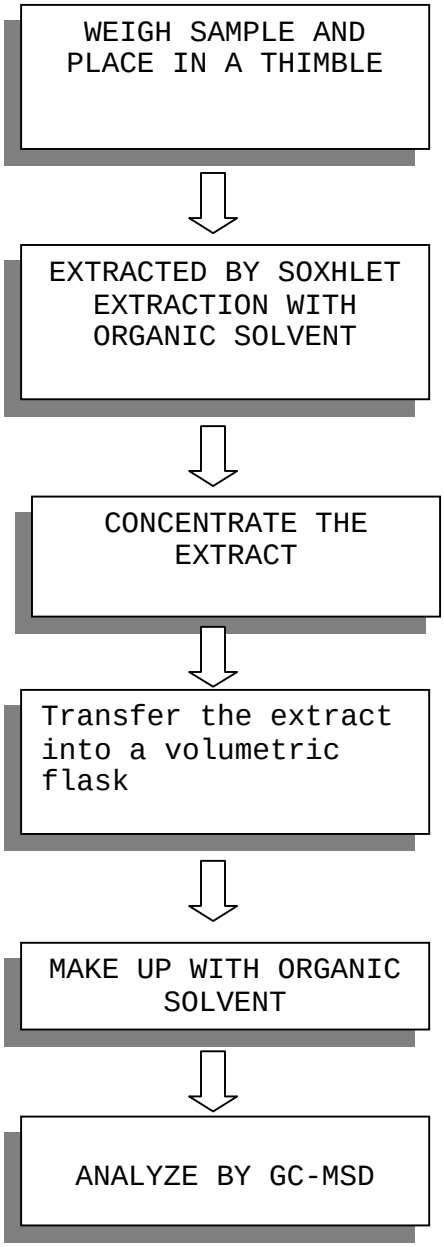
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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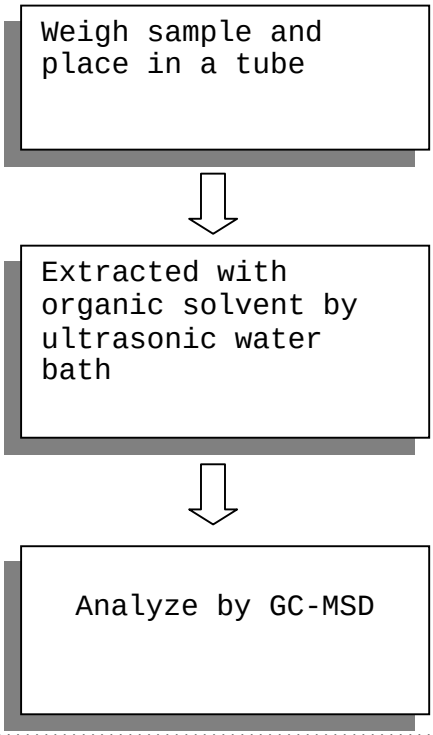
TEST FOR PHTHALATES CONTENTS (CPSC-CH-C1001-09.3)



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