ICP Test Report Certification Packet

Company name: Littelfuse, Inc.

Product Series: 3AB Cartridge

Product #: 326xxxP Series

Issue Date: May 22, 2013

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

Issued by: JENNY DINGLASAN

<Global EHS Specialist>

(1) Parts, sub-materials and unit parts

This document covers the 3AB Cartridge RoHS-Compliant series products manufactured by Littelfuse, Inc.

＜ Raw Materials Used

Please see Table 1

(2) The ICP data on all measurable substances

Please see appropriate pages as identifed in Table 1

Remarks :

Table 1: List of Raw Materials covered by this report

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	910-289 (910-005)	Cap (Copper Shell)	3-9
2	C610 (909-162/909-165)	Ceramic Tube - Body	10-38
3	082xxx-001	99% Cu Sn Plated Wire	39-42
4	LF079020 (917-xxxxxx-P 917-44500410-P, 079xxx)	Cu 110 STRIP with Center Sn Overlay	43-46
5	RD series (899-4xx-1)	Carbon Film Resistor	47-53
6	YTW102 (692535-003)	Solder	54-58
7	AIM230 FastCore H RSA605 (692539-003)	Solder	59-63
8	3M 3779-PG (087244)	HMA (RoHS & Halogens)	64-76
9	648102	Yarn	77-84
10	090187	Filler	85-91
11	090184	Filler	92-99
12	425906	Brown Ink	100-110
13	425902	Black Ink	111-121
14	425907	Green Ink	122-132
15	10-0691 (497xxx)	Element – Ni99.9MAg	133-138
16	DRAGxxx	Element	139-143
17	912-337	Spring	144-148

CTI 华测检测 CENTRE TESTING INTERNATIONAL

Test Report

Report No. RLSZE001492100002

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

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

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

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

Test Method

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

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

Tested by Rick Li Reviewed by Vangan He

Approved by Danny Liu Date Nov. 19, 2012

Technical Manager

No. 11033098

Test Report

Report No. RLSZE001492100002

Test Result(s)

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

Tested Sample/Part Description Metal base

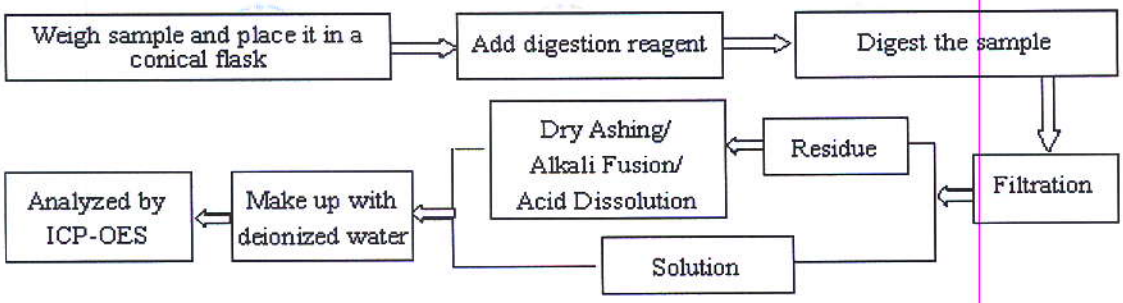
Note: **The sample had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million
-Negative = Absence of Cr(VI) , the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg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

Test Report

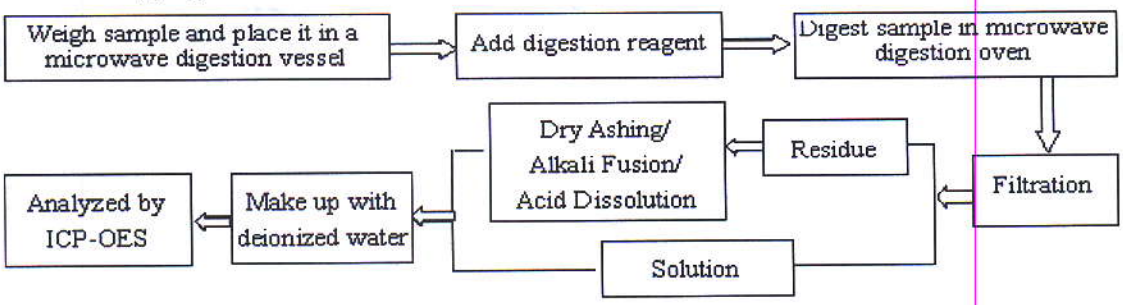
Report No. RLSZE001492100002

Test Process

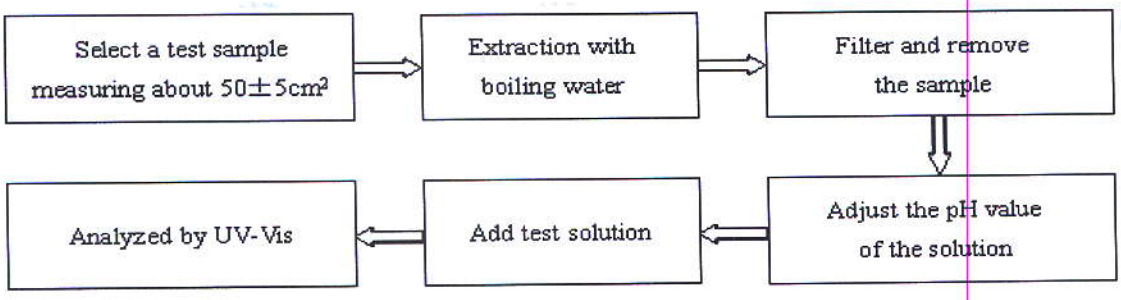
1. Lead(Pb), Cadmium(Cd)



2. Mercury(Hg)



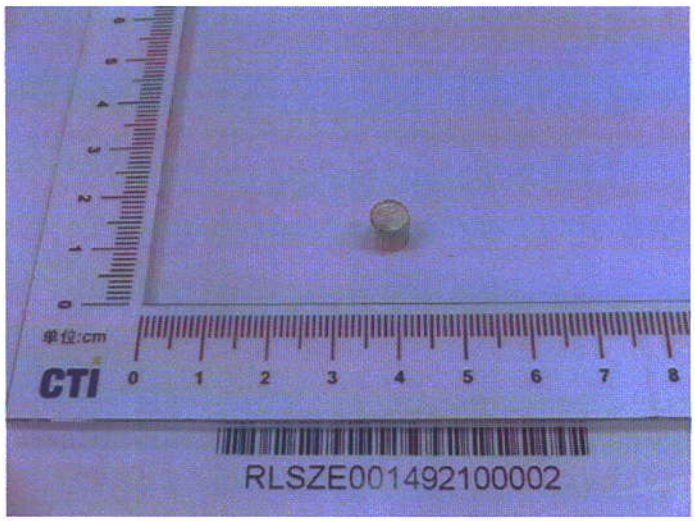
3. Hexavalent Chromium(Cr(VI))



Test Report

Report No. RLSZE001492100002

Photo(s) of the sample(s)



*** End of report ***

CTI 华测检测 CENTRE TESTING INTERNATIONAL

Test Report

Report No. RLSZE001492100001

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

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

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

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

Test Method

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

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

Tested by Rick Li Reviewed by Vangan He

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

CENTRE TESTING INTERNATIONAL CTI SZ03

No. 11033098

Test Report

Report No. RLSZE001492100001

Test Result(s)

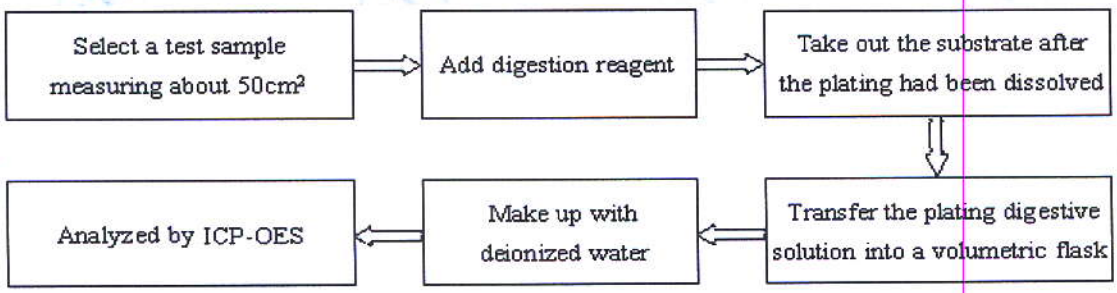
Tested Item(s)	Result
Lead(Pb)	N.D.
Cadmium (Cd)	N.D.
Mercury(Hg)	N.D.
Hexavalent Chromium(Cr(VI))	Negative

Tested Sample/Part Description Silvery plating

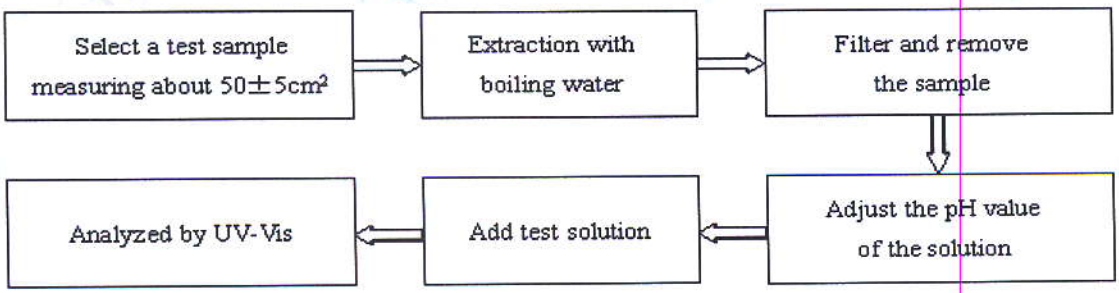
Note: **The washed plating had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million
-Negative = Absence of Cr(VI) , the detected Cr(VI) concentration in the boiling water extraction solution is less than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

Test Process

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



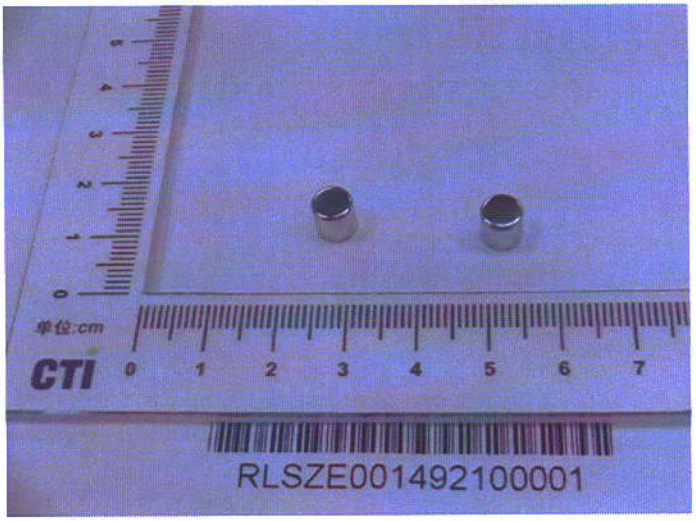
2. Hexavalent Chromium(Cr(VI))



Test Report

Report No. RLSZE001492100001

Photo(s) of the sample(s)



*** End of report ***

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

CERAMTEC GMBH
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

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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.	-

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.	-

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.	-

CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

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.	-

CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

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.	-

CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
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.	-

CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

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.	-

CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

Note :

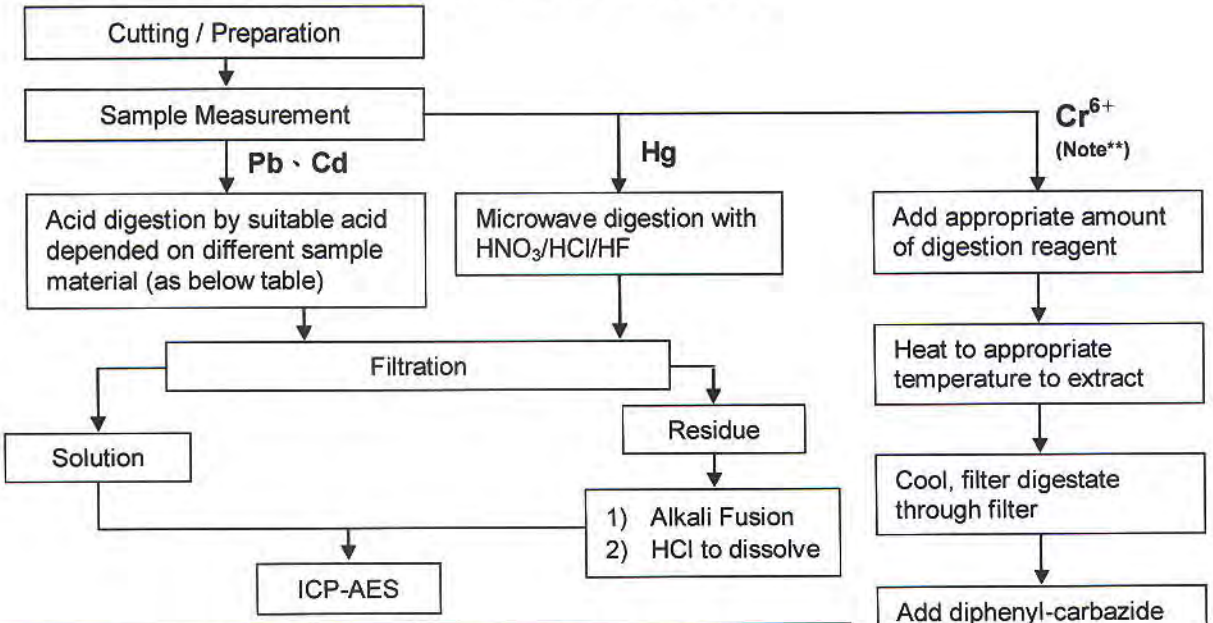
1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated
5. ** = Qualitative analysis (No Unit)
6. Negative = Undetectable / Positive = Detectable
7. Testing range of asbestos qualitative analysis is from less than 0.1% to 100%. The judgment criterion: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

CERAMTEC GMBH
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



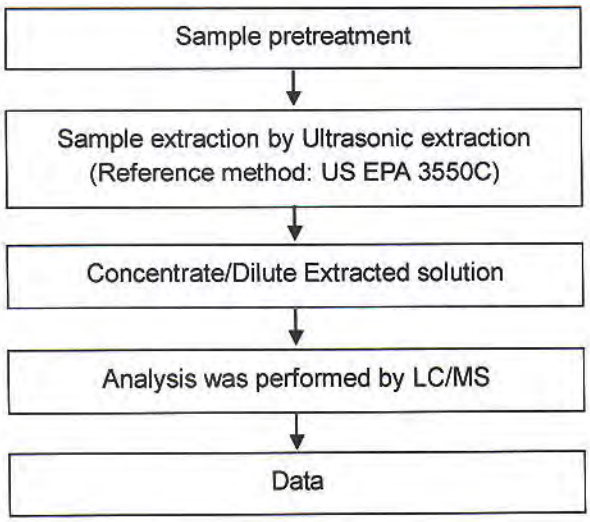
Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO_3, HCl, HF, H_2O_2
Glass	HNO_3/HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO_3
Plastic	H_2SO_4, H_2O_2, HNO_3, HCl
Others	Added appropriate reagent to total digestion

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.

CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

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

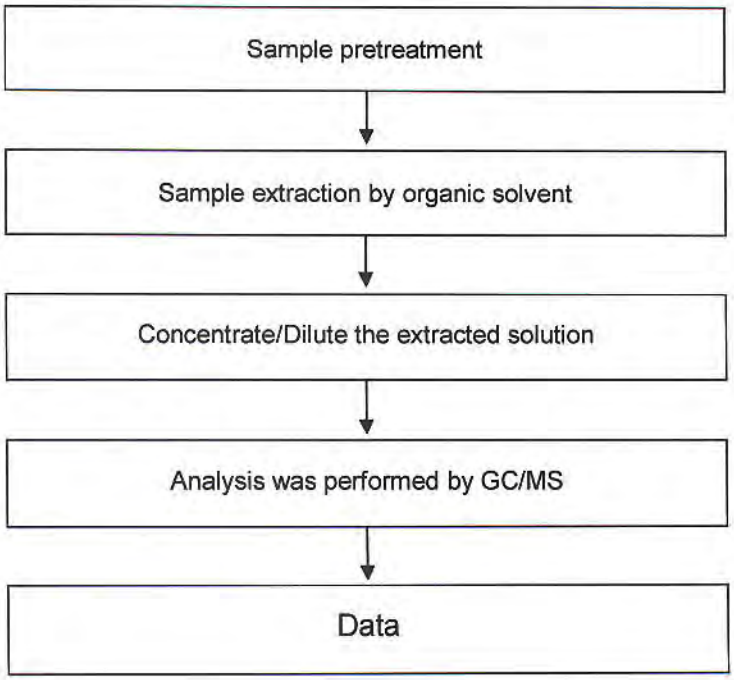
- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

PCTs analytical flow chart

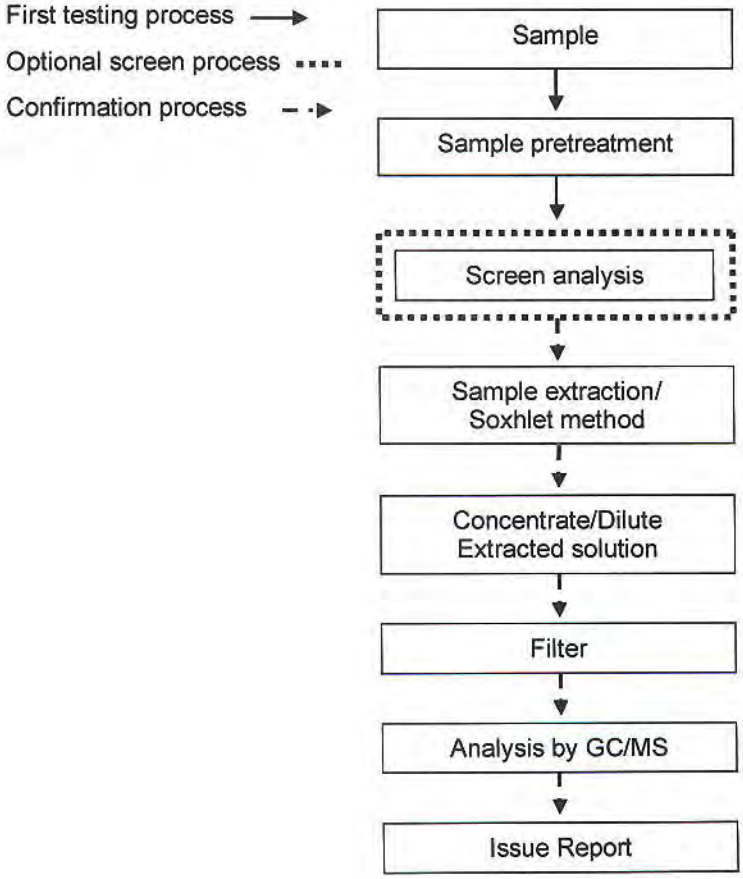
- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

PBB/PBDE analytical FLOW CHART

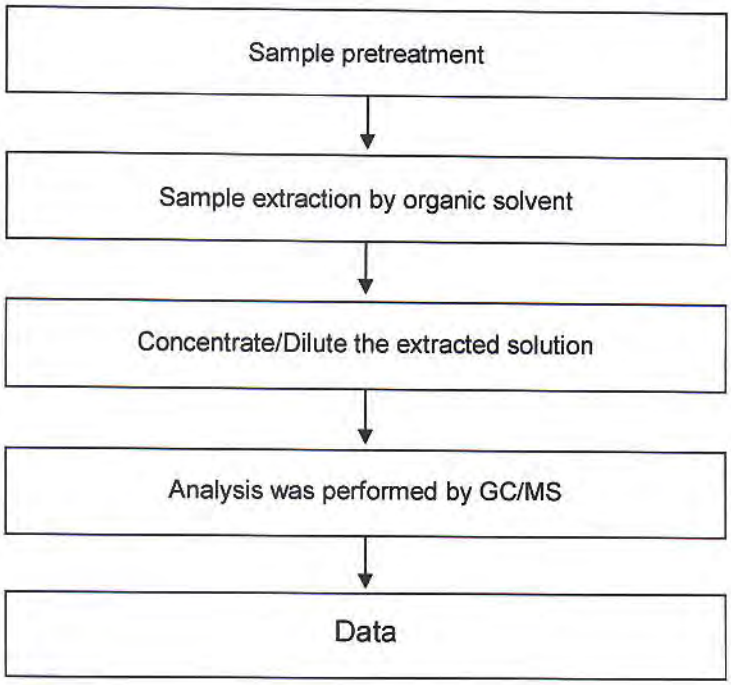
- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

PCBs analytical flow chart

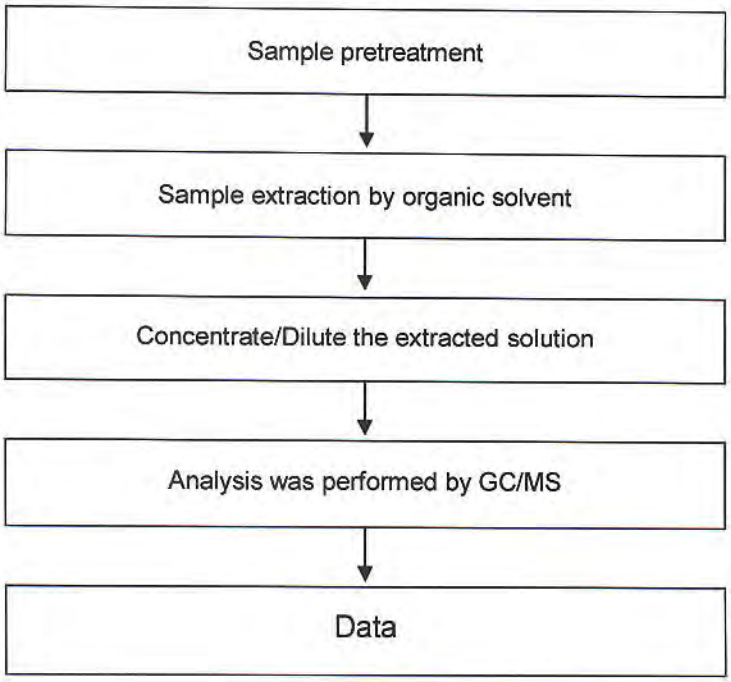
- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

Chlorinated Paraffins analytical flow chart

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

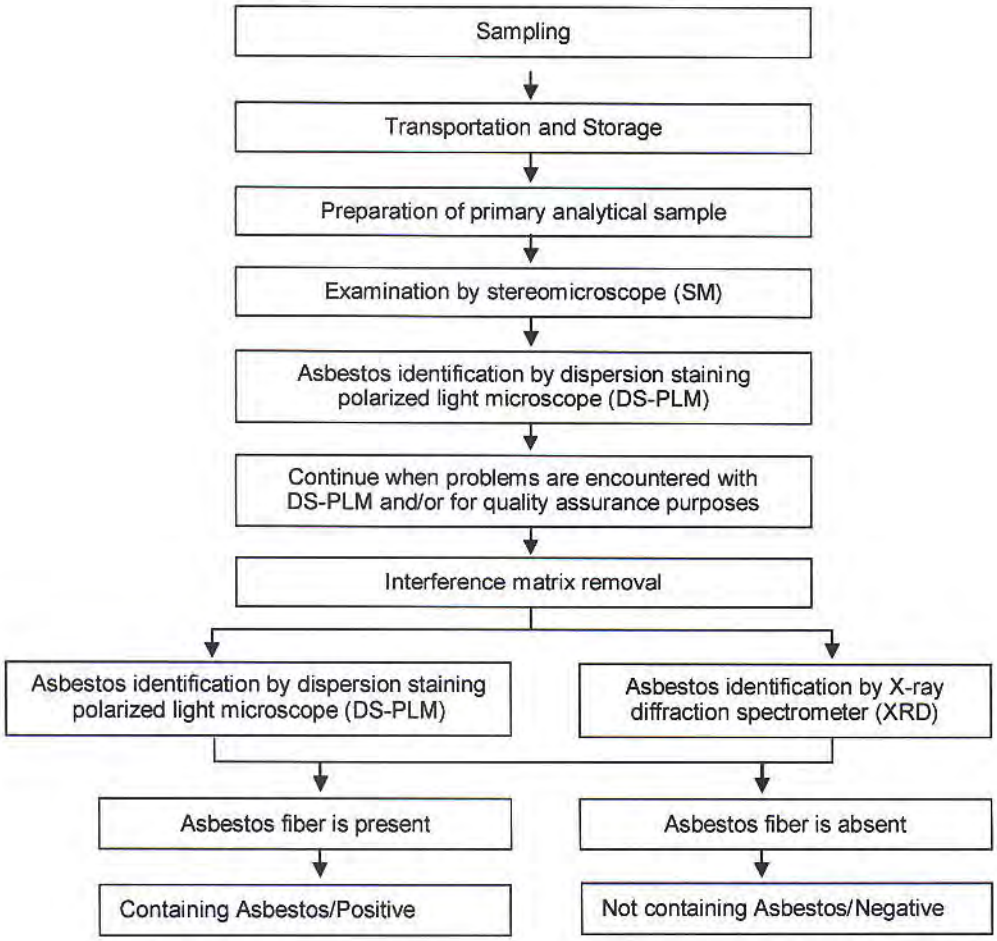


CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

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

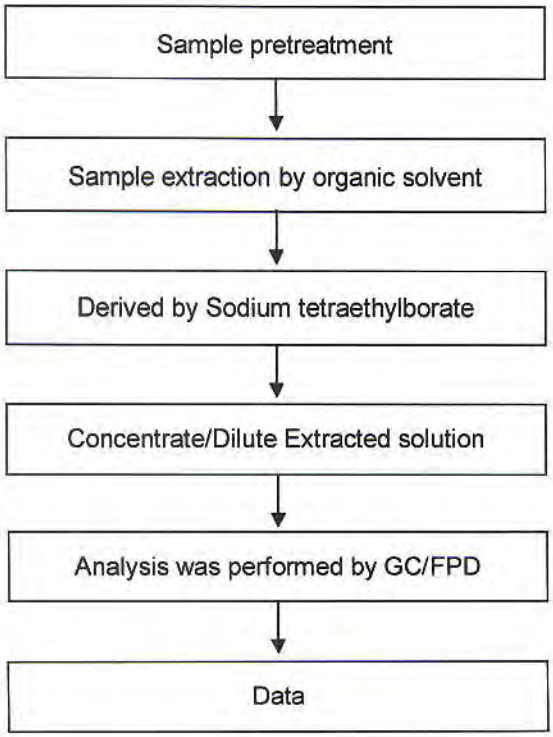
【 Reference method: EPA 600/R-93/116 】



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

Analytical flow chart of Organic-Tin content

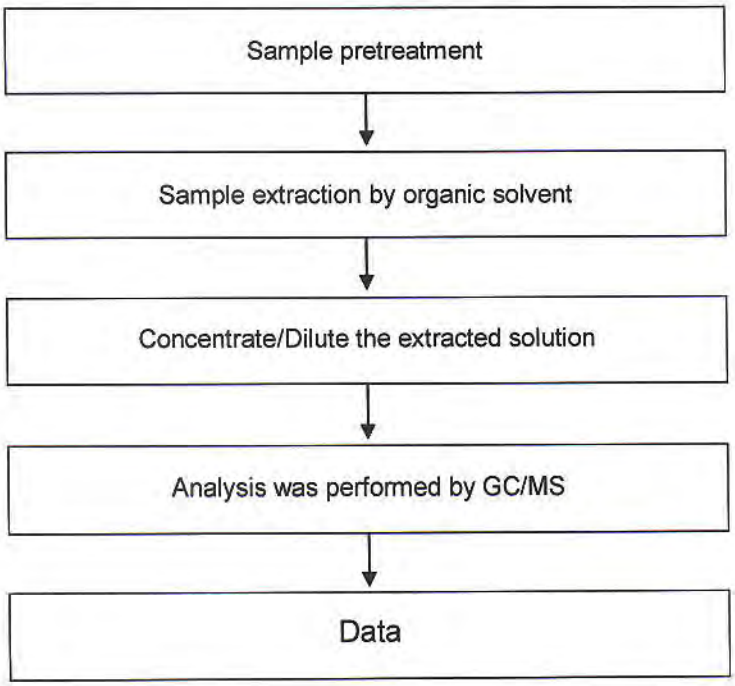
- Name of the person who made measurement: Ginny Chen
- Name of the person in charge of measurement: Troy Chang



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

PCNs analytical flow chart

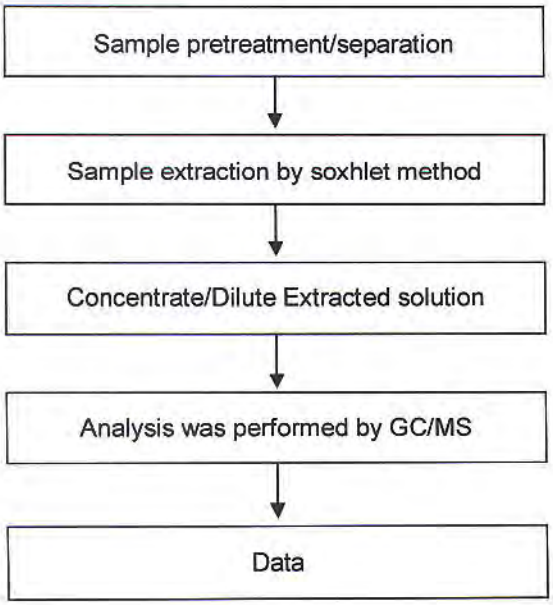
- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

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

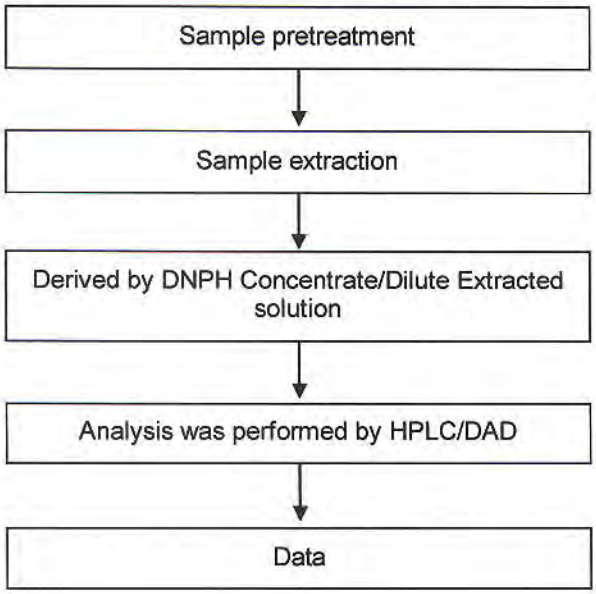


CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

Formaldehyde analytical flow chart

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

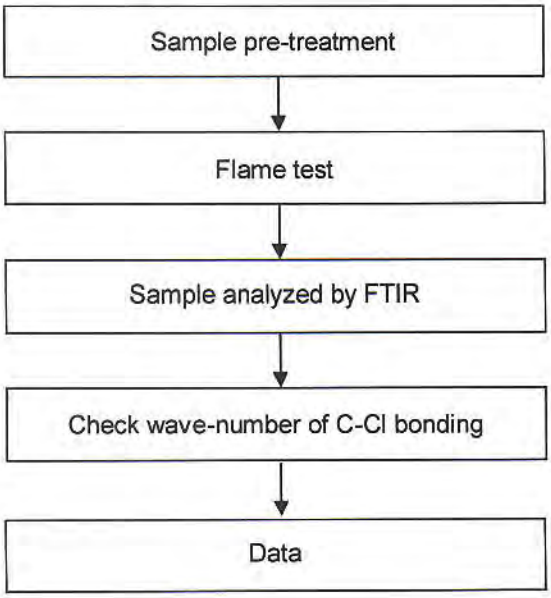
【 **Test Method** : US EPA 8315A、ISO 17226-1 】



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

Analysis flow chart for determination of PVC in material

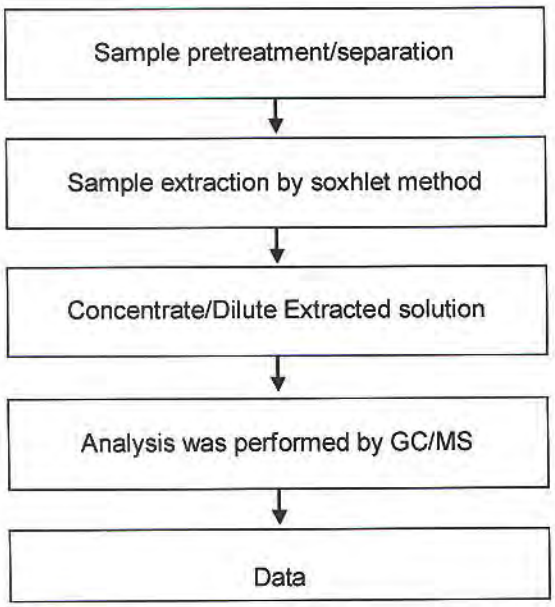
- Name of the person who made measurement: Ginny Chen
- Name of the person in charge of measurement: Troy Chang



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

DBBT analytical flow chart

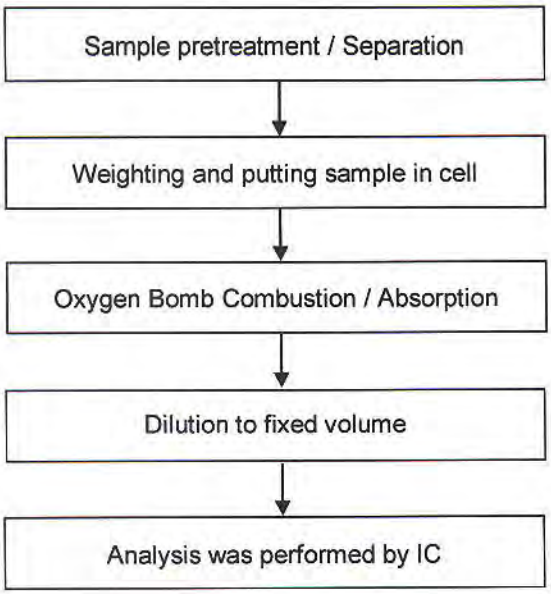
- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

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

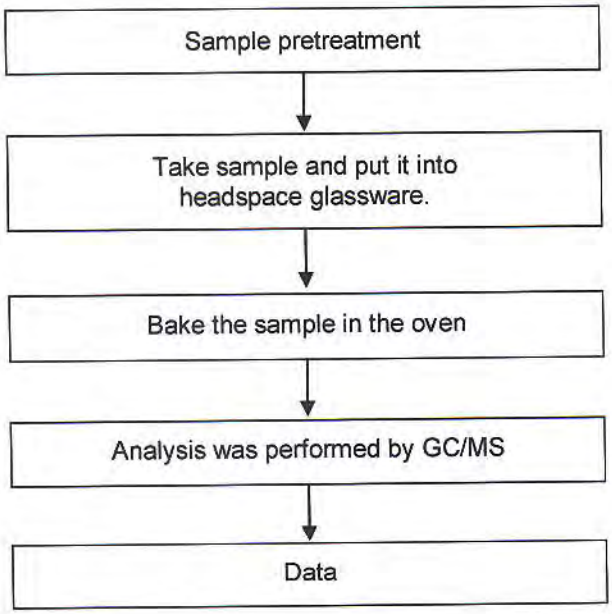


CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

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

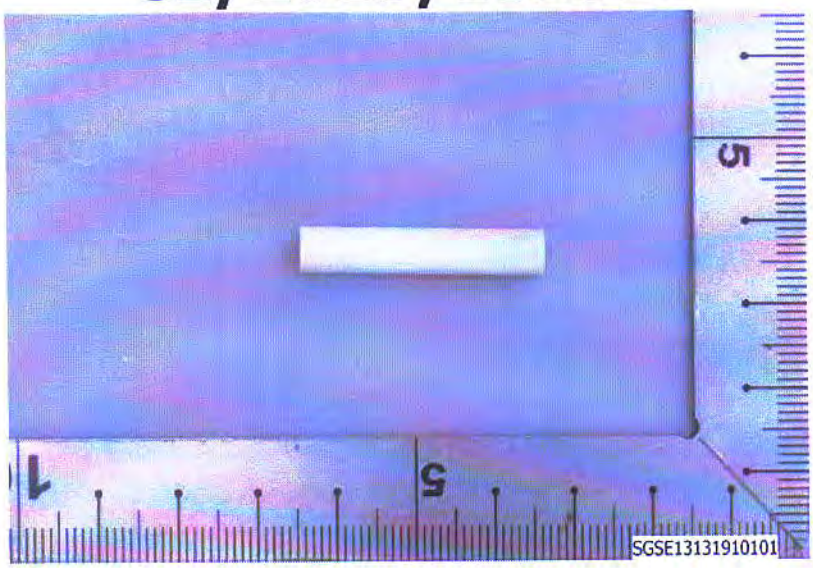
【Reference method : US EPA 5021】



CERAMTEC GMBH
GESCHAFTSBEREICH MULTIFUNKTIONSKERAMIK,LUITPOLDSTRABE 15, 91207 LAUF

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

CE/2013/13191



** End of Report **

Test Report Number: SHAH00361401

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

Date: JAN 16, 2013

Sample Description:
One (1) submitted sample said to be **Grey Wire.**
Item Name : Wire Tin Plated Cu.
Part No. : Element.

****

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

****

To be continued

Authorized by:
For intertek testing services Ltd., Shanghai

Jacob Lin
General Manager

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

Intertek Testing Services Ltd., Shanghai
Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233
上海天祥質量技術服務有限公司
上海市宜山路 801 號金陵商務廣場 B 座 200233
Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740
www.intertek.com www.intertek.com.cn

Test Report Number: SHAH00361401

Tests Conducted

(Ⅰ) Test Result Summary:

Testing Item R	esult (ppm)
(1)	
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr^{6+}) content (mg/kg With $50cm^2$)	Negative (< 0.02)

Testing Item R	esult (ppm)
(2)	
Heavy Metal	
Cadmium (Cd) content / Plating	ND
Lead (Pb) content / Plating	60
Mercury (Hg) content / Plating	ND
Chromium VI (Cr^{6+}) content (mg/kg With $50cm^2$) / Plating	Negative (< 0.02)

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

@ = Due to the insufficient sample area, reduced total sample surface of 10 cm^2 was used and the dilution factor was adjusted accordingly.
mg/kg with $50cm^2$ = milligram per kilogram with 50 square centimetre

Tested components:
(1)Substrate.
(2)Plating.

Responsibility of Chemist: Dent Fang / Ken He

(Ⅱ) RoHS Requirement:

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

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

(Ⅲ) Test Method:

Testing item T	esting method R	eporting limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr^{6+}) content	With reference to IEC 62321 edition 1.0:2008 in Annex B, by boiling water extraction and determined by UV-VIS Spectrophotometer.	0.02 mg/kg with $50cm^2$

Remark: Reporting limit = Quantitation limit of analyze in sample

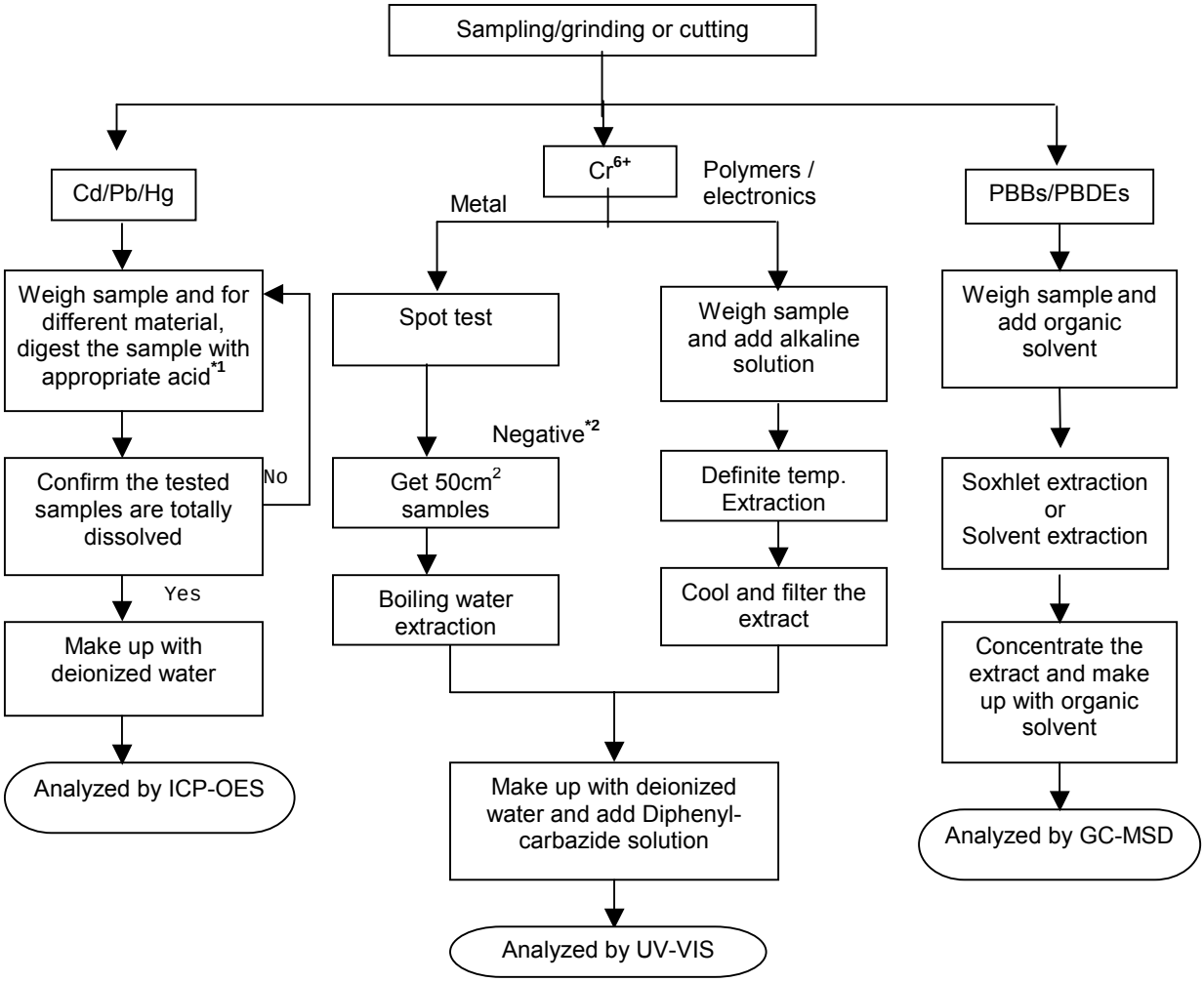
Date Sample Received: Jan.9, 2013
Testing Period: Jan.9, 2013 to Jan.14, 2013

****

To be continued

Intertek Testing Services Ltd., Shanghai
Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233
上海天祥質量技術服務有限公司
上海市宜山路 801 號金陵商務廣場 B 座 200233
Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740
www.intertek.com www.intertek.com.cn

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

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

Test Report Number： SHAH00361401

Tests Conducted

****

End of report

Intertek Testing Services Ltd., Shanghai
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Test Report

No. SHAEC1215842621 Date: 13 Sep 2012

CHINALO LUOYANG COPPER CO., LTD.

NO.50,JIANSHE ROAD,LUOYANG,HENAN PROVINCE

The following sample(s) was/were submitted and identified on behalf of the clients as : C10100(TU1)

SGS Job No. :	SP12-027024 - SH
Date of Sample Received :	10 Sep 2012
Testing Period :	10 Sep 2012 - 13 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 comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-158426.015	Copper metal sheet

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

(1) Determination of Cadmium by ICP-OES.

(2) Determination of Lead by ICP-OES.

(3) Determination of Mercury by ICP-OES.

(4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method using UV-Vis.

Test Item(s)	Limit	Unit	MDL	*015*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	◇	Negative

Notes :

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

(2) ◇Spot-test:

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

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

◇Boiling-water-extraction:

Negative = Absence of Cr(VI) coating

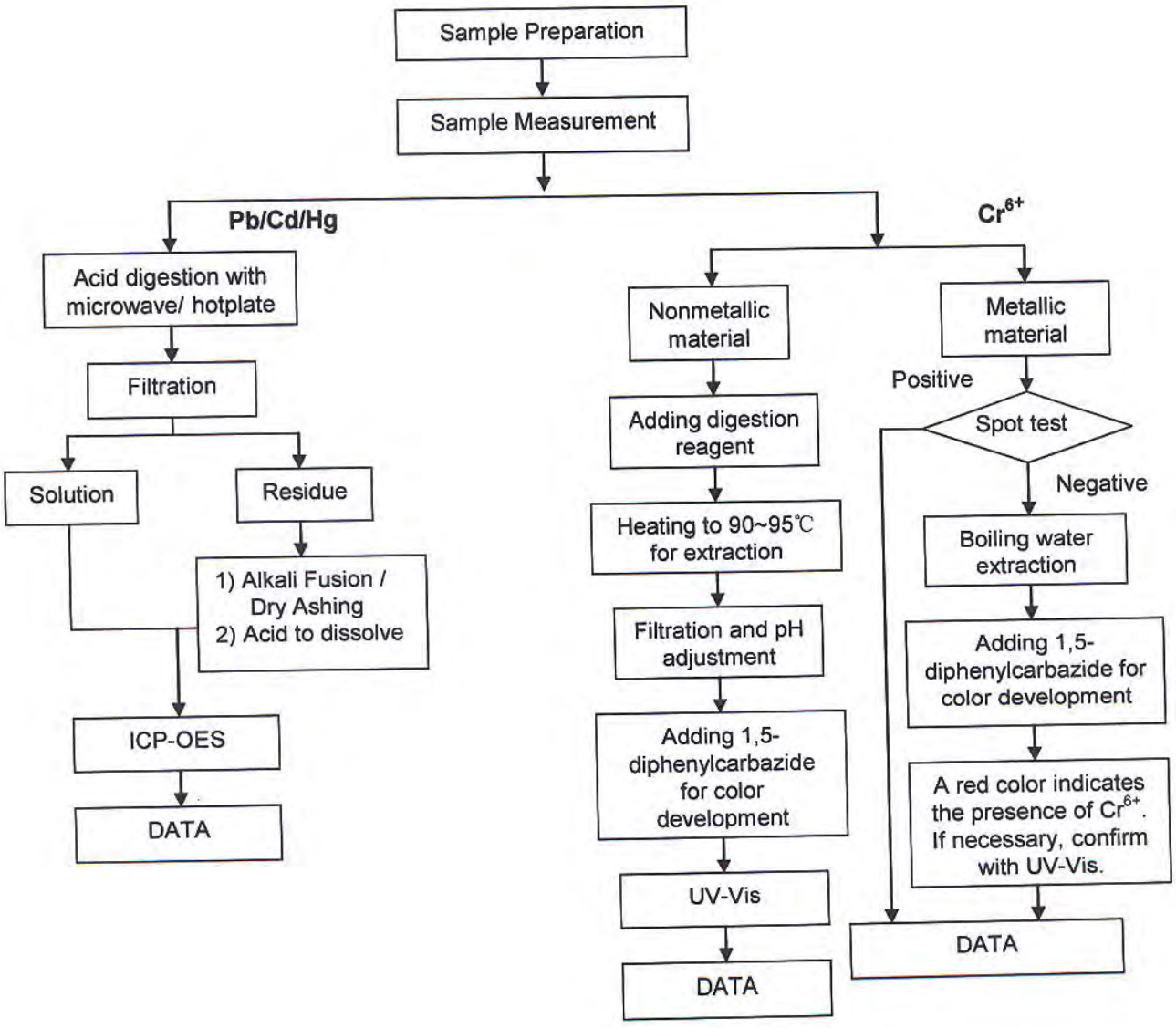
Positive = Presence of Cr(VI) coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

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

ATTACHMENTS

RoHS Testing Flow Chart

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



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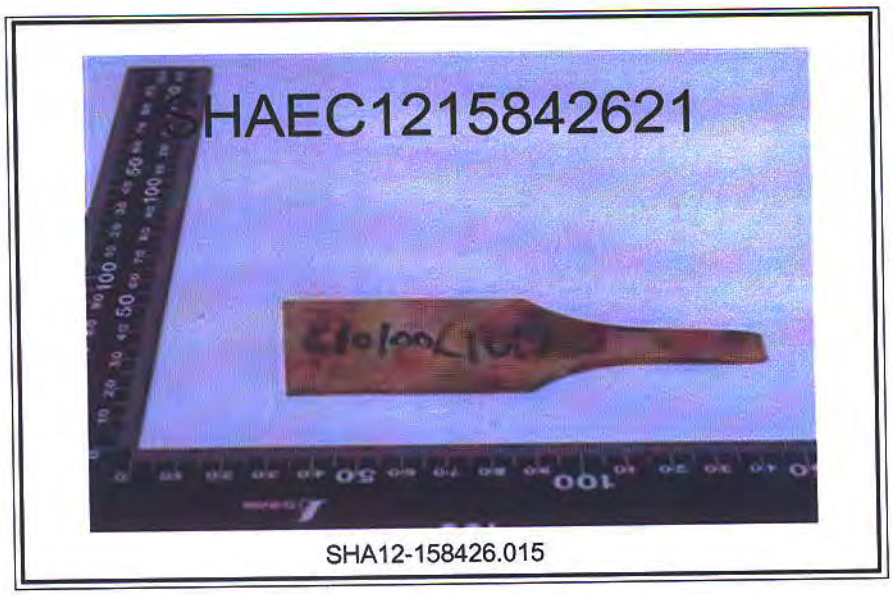
Member of the SGS Group (SGS SA)

Sample photo:



SHA12-158426.015

SGS authenticate the photo on original report only

*** End of Report ***

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CTI 华测检测
CENTRE TESTING INTERNATIONAL

Test Report

Report No. RLSHE001116910005

Applicant YANCHENG HUIHUA METAL WIRE CO.,LTD
Address NO.10 HUANGHE ROAD,ECONOMIC DEVELOPMENT ZONE,FUNING COUNTY,YANCHENG

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

Final product Name	TIN COATED COPPER WIRE
Sample Name	1. COPPER 2. THE TIN LAYER
Sample Received Date	Aug.10,2012
Testing Period	Aug.10,2012 to Aug.15,2012
Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Hexabromocyclododecane (HBCDD), Phthalates in the submitted sample(s).
Test Method	Please refer to the following pages.
Test Result	Please refer to the following pages.

Tested by Verna chen Reviewed by Lucy Zhong

Approved by Joy Su Date Aug.15.2012

Joy Su
Senior Laboratory Manager

CENTRE TESTING INTERNATIONAL CTI SH03

No. 83402468

Test Report

Test Method

Tested Item	Test Method	Measured Equipment	M.D.L.
Lead (Pb)	IEC 62321:2008 Ed.1 Sec.9	ICP-OES	2 mg/kg
	Plating layer test method (In-house method)		
Cadmium (Cd)	IEC 62321:2008 Ed.1 Sec.9	ICP-OES	2 mg/kg
	Plating layer test method (In-house method)		
Mercury (Hg)	IEC 62321:2008 Ed.1 Sec.7	ICP-OES	2 mg/kg
	Plating layer test method (In-house method)		
Hexavalent Chromium (Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis	/
Polybrominated Biphenyls (PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5 mg/kg
Hexabromocyclododecane (HBCDD)	Refer to US EPA3550C:2007	GC-MS	5mg/kg
Phthalates	Refer to EN 14372:2004	GC-MS	50mg/kg

Test Result

Tested Items	Content	
	1	2
Lead (Pb)	N.D.	34 mg/kg
Cadmium (Cd)	N.D.	N.D.
Mercury (Hg)	N.D.	N.D.
Hexavalent Chromium (Cr(VI))	Negative	Negative

Test Report

Report No. RLSHE001116910005

Tested Item(s)	Content	
	1	2
Polybrominated Biphenyls(PBBs)		
Monobromobiphenyl	N.D.	N.D.
Dibromobiphenyl	N.D.	N.D.
Tribromobiphenyl	N.D.	N.D.
Tetrabromobiphenyl	N.D.	N.D.
Pentabromobiphenyl	N.D.	N.D.
Hexabromobiphenyl	N.D.	N.D.
Heptabromobiphenyl	N.D.	N.D.
Octabromobiphenyl	N.D.	N.D.
Nonabromobiphenyl	N.D.	N.D.
Decabromobiphenyl	N.D.	N.D.
Polybrominated Diphenyl Ethers(PBDEs)		
Monobromodiphenyl ether	N.D.	N.D.
Dibromodiphenyl ether	N.D.	N.D.
Tribromodiphenyl ether	N.D.	N.D.
Tetrabromodiphenyl ether	N.D.	N.D.
Pentabromodiphenyl ether	N.D.	N.D.
Hexabromodiphenyl ether	N.D.	N.D.
Heptabromodiphenyl ether	N.D.	N.D.
Octabromodiphenyl ether	N.D.	N.D.
Nonabromodiphenyl ether	N.D.	N.D.
Decabromodiphenyl ether	N.D.	N.D.

Tested Item	Content	
	1	2
Hexabromocyclododecane (HBCDD)	N.D.	N.D.

Test Report

Tested Item	CAS No.	EC No.	Content	
			1	2
Phthalates				
Dibutyl phthalate（DBP）	84-74-2	201-557-4	N.D.	N.D.
Benzylbutyl phthalate（BBP）	85-68-7	201-622-7	N.D.	N.D.
Bis(2-ethyl(hexyl)) phthalate (DEHP)	117-81-7	204-211-0	N.D.	N.D.

Tested Sample/Part Description: 1. Metal base material 2. Silvery plating

Note **The sample had been dissolved totally tested for Lead, Cadmium, and Mercury.**

-M.D.L. = Method Detection Limit

-N.D. = Not Detected (<M.D.L.)

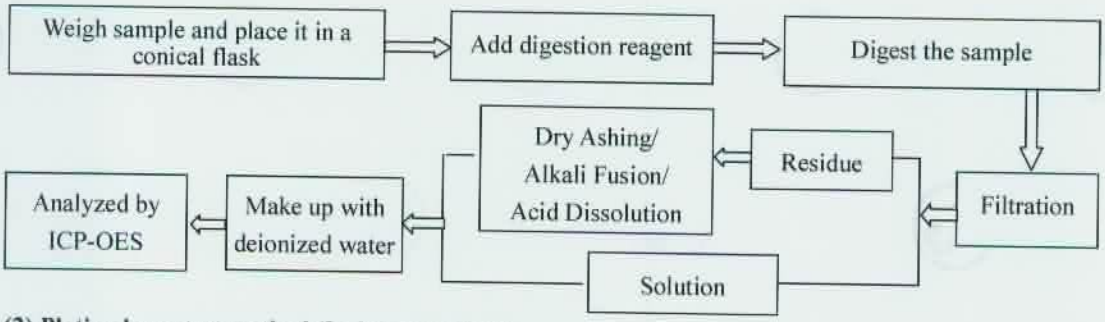
-mg/kg = ppm = parts per million

-Negative = Absence of Cr (VI). The Cr (VI) concentration detected in the boiling water extraction solution is less than 0.02 mg/kg with 50cm^2 sample surface area used.

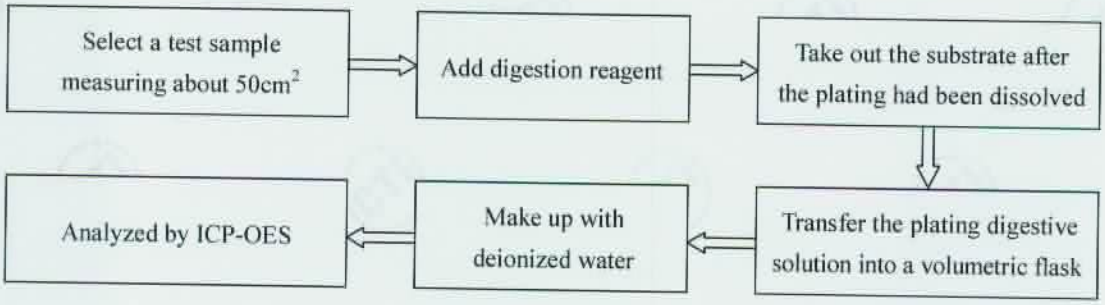
Test Process

1. Test for Pb/Cd Content

(1) IEC 62321:2008 Ed.1 Sec.9



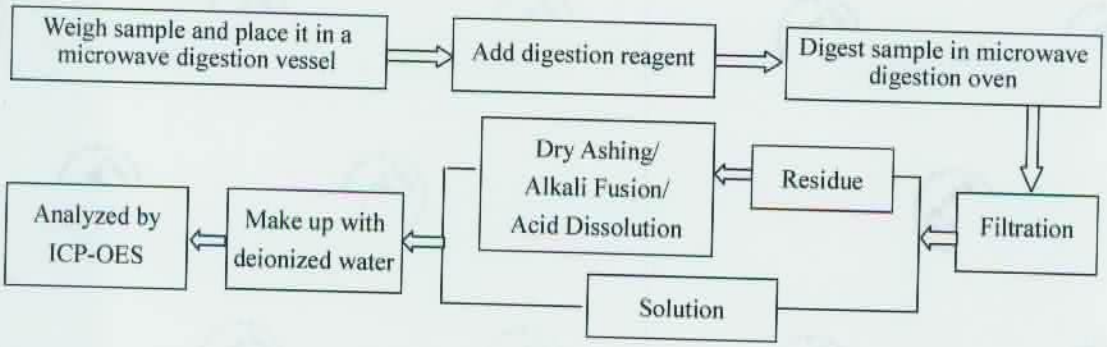
(2) Plating layer test method (In-house method)



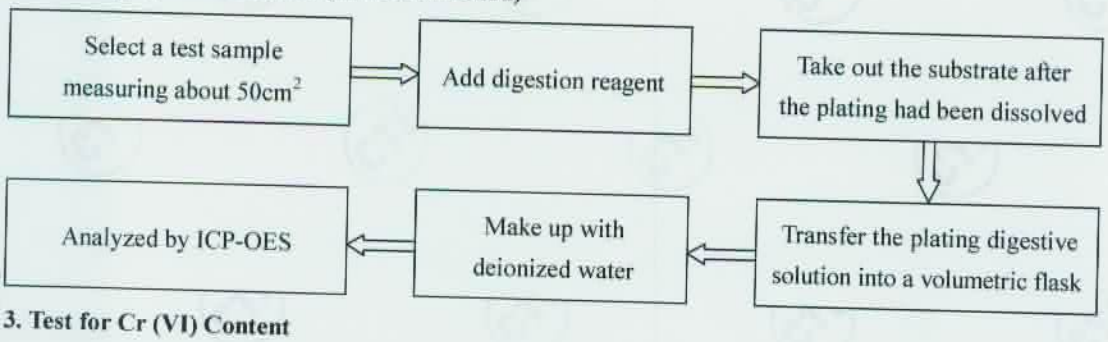
Test Report

2. Test for Hg Content

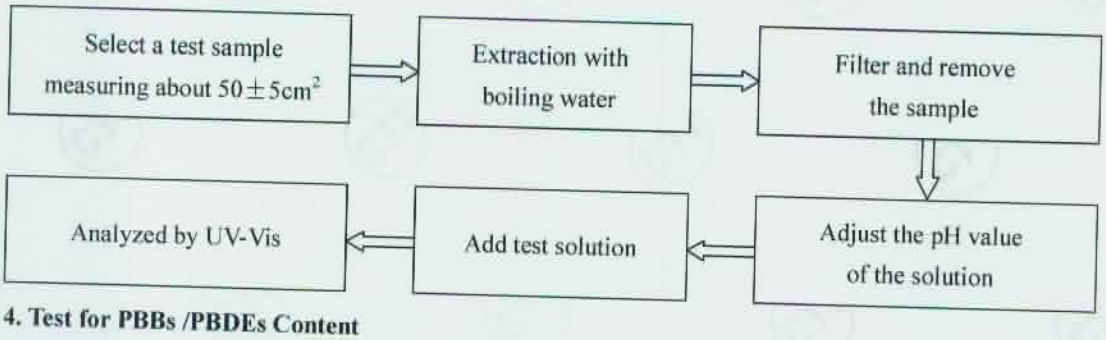
(1)IEC 62321:2008 Ed.1 Sec.7



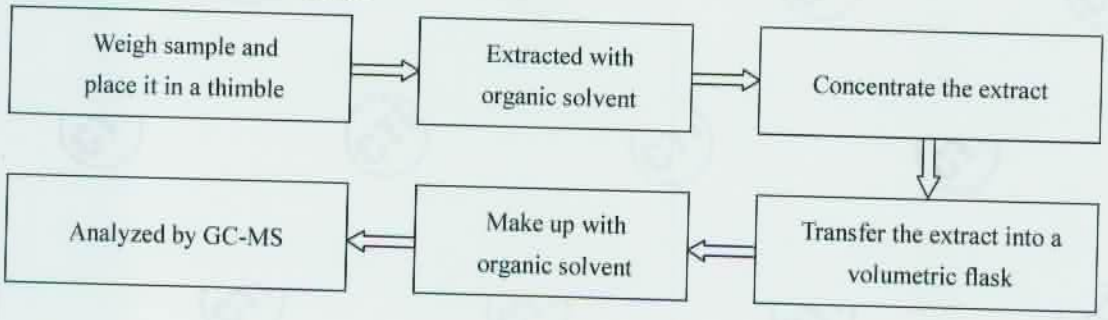
(2) Plating layer test method (In-house method)



3. Test for Cr (VI) Content

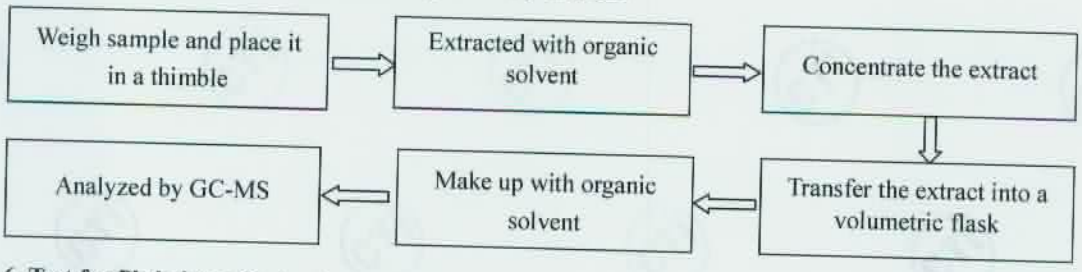


4. Test for PBBs /PBDEs Content

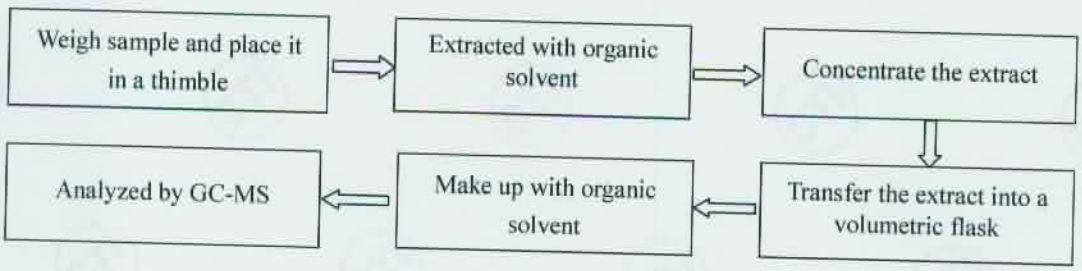


Test Report

5. Test for Hexabromocyclododecane (HBCDD) Content



6. Test for Phthalates Content



Test Report

Photo of the sample

1,2

*** End of Report ***

Test Report

No. SHAEC1216714748 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) :	YTW108（692535-001、692535-003）
Composition :	Sn3.0CuRE
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

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Testing Center
3rd Building,No.889 Yishan Road Xuhui District,Shanghai China 200233
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HL: (86-21) 61402594 HL: (86-21)54500353 e sgs.china@sgs.com

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-167147.041	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	*041*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	55
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

Test Item(s)	Limit	Unit	MDL	041
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

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

(2) ◇Spot-test:

Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating;
(The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)

◇Boiling-water-extraction:

Negative = Absence of Cr(VI) coating

Positive = Presence of Cr(VI) coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm^2 sample surface area.

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

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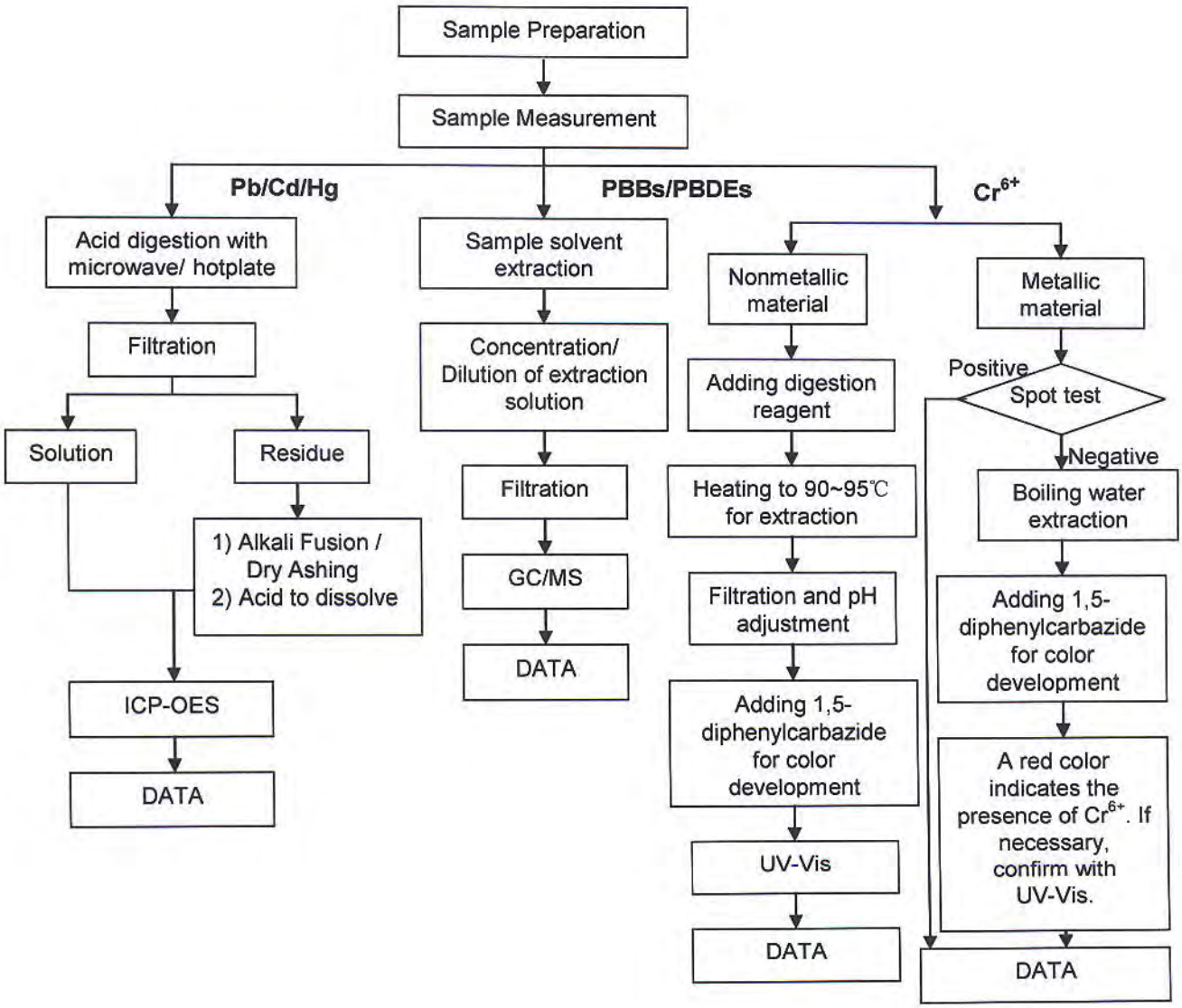
HL: (86-21) 61402594 HL: (86-21)54500353 e sgs.china@sgs.com

ATTACHMENTS

RoHS Testing Flow Chart

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



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

Sample photo:

SHA12-167147.041

SGS authenticate the photo on original report only

*** End of Report ***

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Test Report

No. CANEC1208305601 Date: 02 Jul 2012

AIM SOLDER (SHEN ZHEN) CO.,LTD.

BLOCK 69,THIRD INDUSTRIAL ZONE,LUOTIAN VILLAGE,SONGGANG TOWN,BAOAN DISTRICT,SZ CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : SOLDER WIRE AIM230 FAST CORE H RSA605

SGS Job No. :	CP12-030363 - SZ
Date of Sample Received :	26 Jun 2012
Testing Period :	26 Jun 2012 - 02 Jul 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.

Kenny Wang
Approved Signatory

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	CAN12-083056.001	Silvery metal wire

Remarks :

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

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008
(1) Determination of Cadmium by ICP-OES.
(2) Determination of Lead by ICP-OES.
(3) Determination of Mercury by ICP-OES.
(4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method using UV-Vis.
(5) Determination of PBBs / PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	*001*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	78
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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

Notes :

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

(2)◇Spot-test:

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

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

◇Boiling-water-extraction:

Negative = Absence of CrVI coating

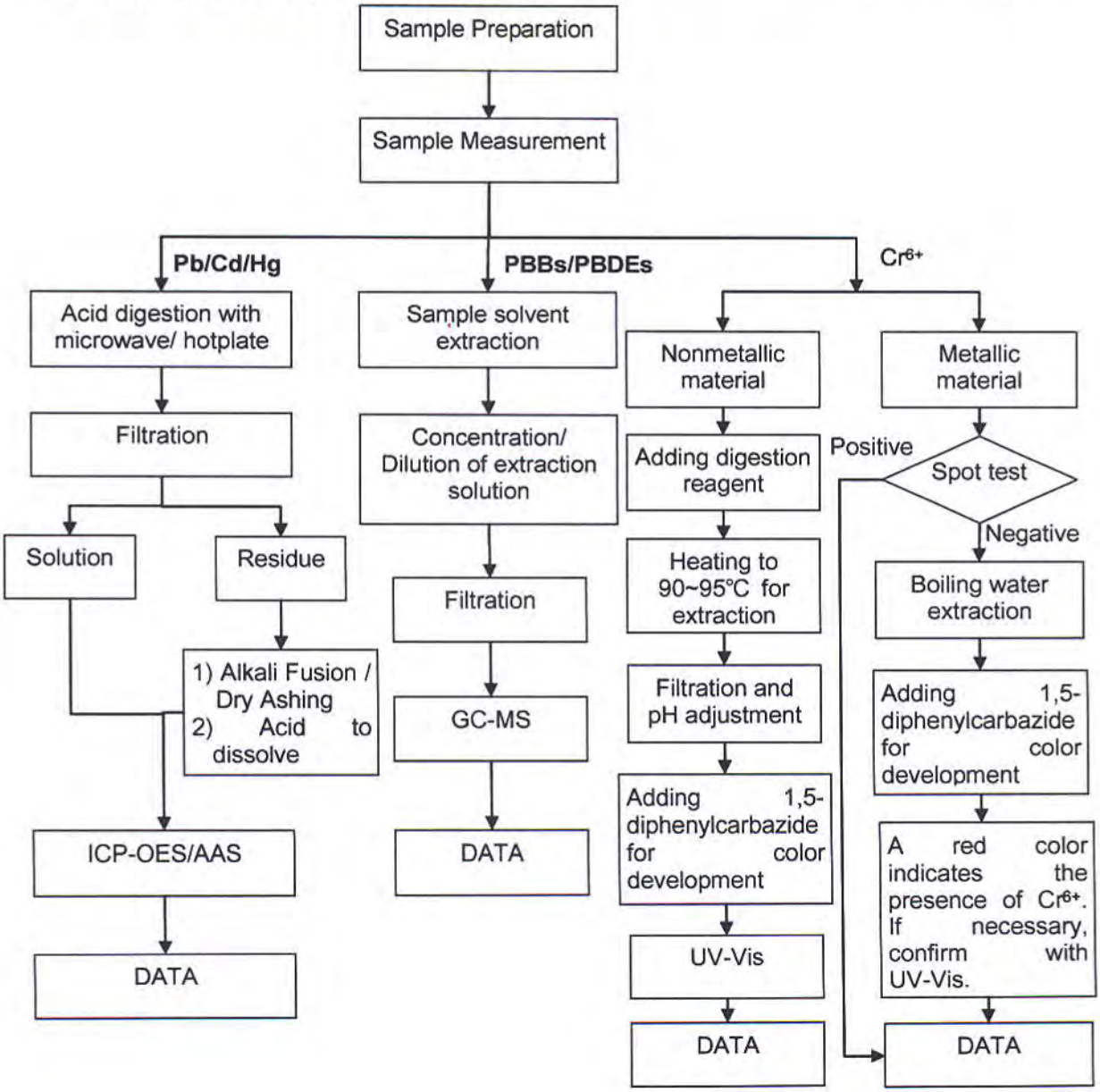
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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

ATTACHMENTS

RoHS Testing Flow Chart

1) Name of the person who made testing: Bella Wang / Cutey Yu
2) Name of the person in charge of testing: Adams Yu / Ryan Yang
3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr^{6+} and PBBs/PBDEs test method excluded).



Sample photo:

CAN12-083056.001

SGS authenticate the photo on original report only

*** End of Report ***

Test Report

No. SHAEC1219975401 Date: 19 Nov 2012

3M CHINA LIMITED

222# TIAN LIN ROAD, SHANGHAI (200233)

The following sample(s) was/were submitted and identified on behalf of the clients as : 3M 3779-PG

SGS Job No. :	SP12-033081 - SH
Date of Sample Received :	14 Nov 2012
Testing Period :	14 Nov 2012 - 19 Nov 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.

JJ Fan
Approved Signatory

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

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-199754.001	Brown solid

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

(1) Determination of Cadmium by ICP-OES.

(2) Determination of Lead by ICP-OES.

(3) Determination of Mercury by ICP-OES.

(4) Determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.

(5) Determination of PBBs / PBDEs content by GC-MS.

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

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

Notes :

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

Hexabromocyclododecane (HBCDD)

Test Method : Determination of HBCDD by GC-MS based on IEC 62321:2008.

Test Item(s)	Unit	MDL	*001*
Hexabromocyclododecane (HBCDD)	mg/kg	10	ND

Notes :

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

Phthalates

Test Method : Determination of phthalates by GC-MS based on EN 14372:2004.

Test Item(s)	Unit	MDL	*001*
Dibutyl Phthalate (DBP)	%	0.003	ND
Benzylbutyl Phthalate (BBP)	%	0.003	ND
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	ND

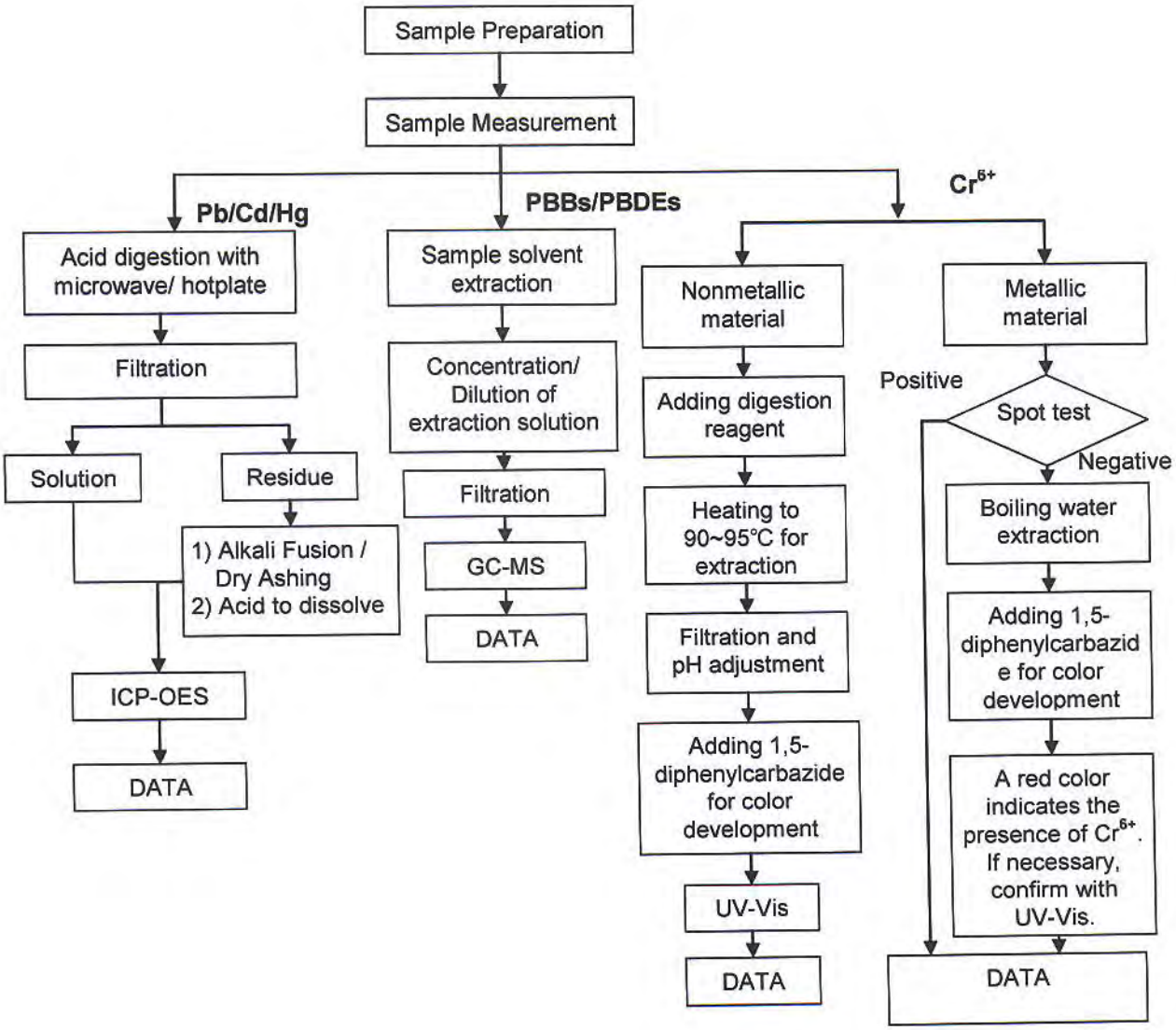
Notes :

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

ATTACHMENTS

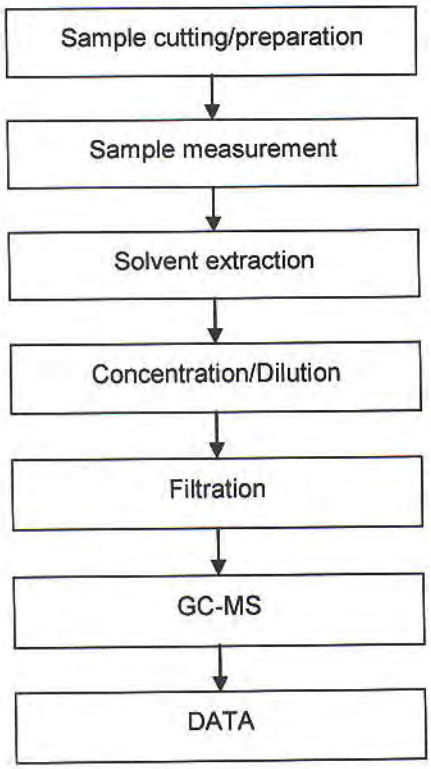
RoHS Testing Flow Chart

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)



Phthalates Testing Flow Chart

1) Name of the person who made testing: Elyn Yao
2) Name of the person in charge of testing: Rachel Zhang



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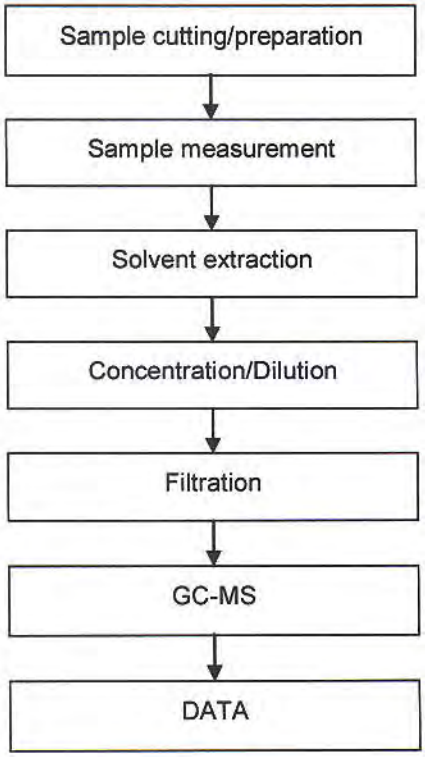
HBCDD Testing Flow Chart

1) Name of the person who made testing: Gary Xu
2) Name of the person in charge of testing: Jessy Huang



Sample photo:

SHA12-199754.001

SGS authenticate the photo on original report only

*** End of Report ***

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Testing Certification Inspection
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Test Report

No. SHAEC1219975401 Date: 19 Nov 2012

3M CHINA LIMITED

222# TIAN LIN ROAD, SHANGHAI (200233)

The following sample(s) was/were submitted and identified on behalf of the clients as : 3M 3779-PG

SGS Job No. :	SP12-033081 - SH
Date of Sample Received :	14 Nov 2012
Testing Period :	14 Nov 2012 - 19 Nov 2012
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).

Signed for and on behalf of
SGS-CSTC Ltd.

JJ Fan
Approved Signatory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA12-199754.001	Brown solid

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

Halogen

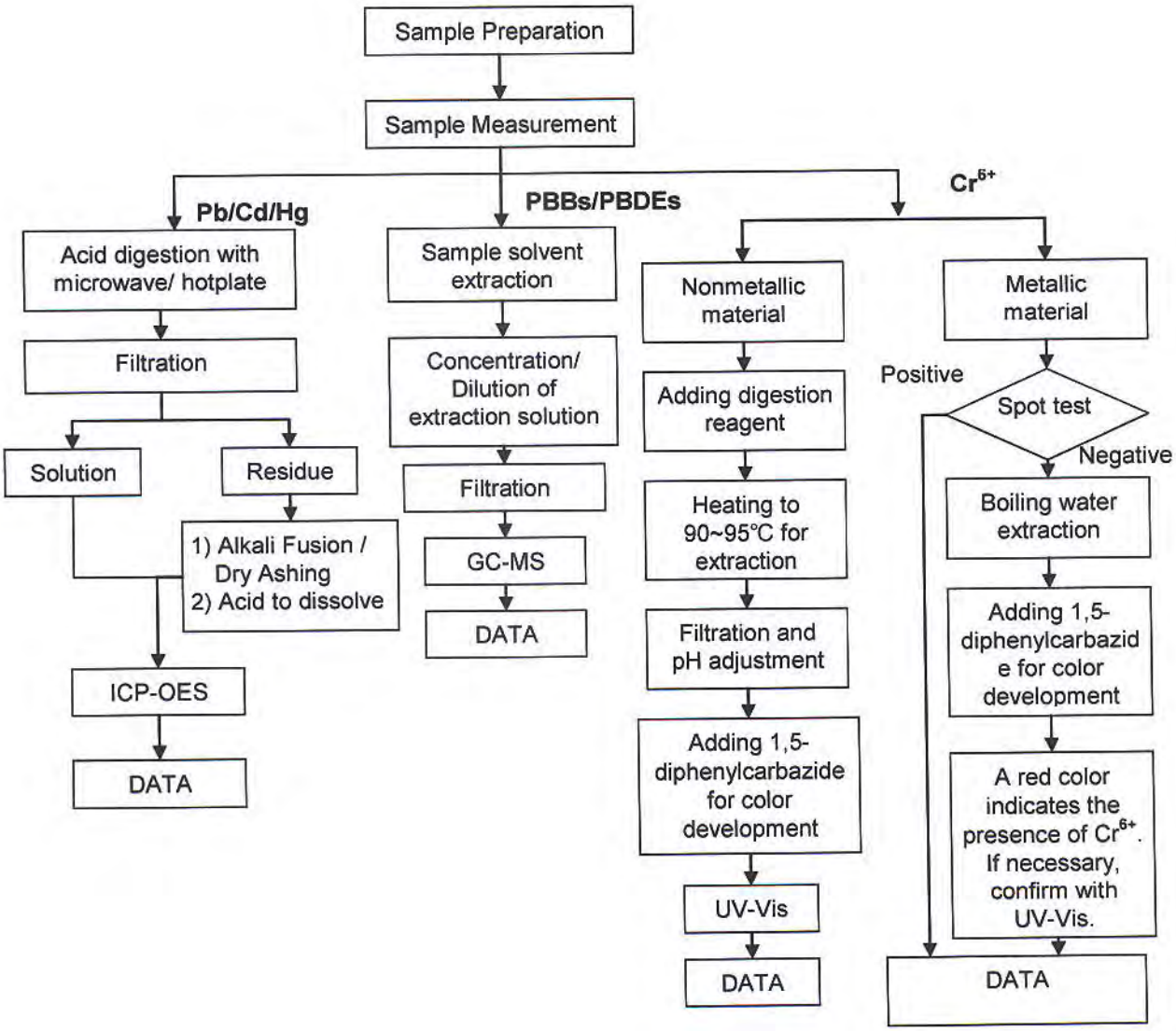
Test Method : With reference to EN 14582: 2007, analysis was performed by Ion Chromatograph (IC).

Test Item(s)	Unit	MDL	*001*
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

ATTACHMENTS

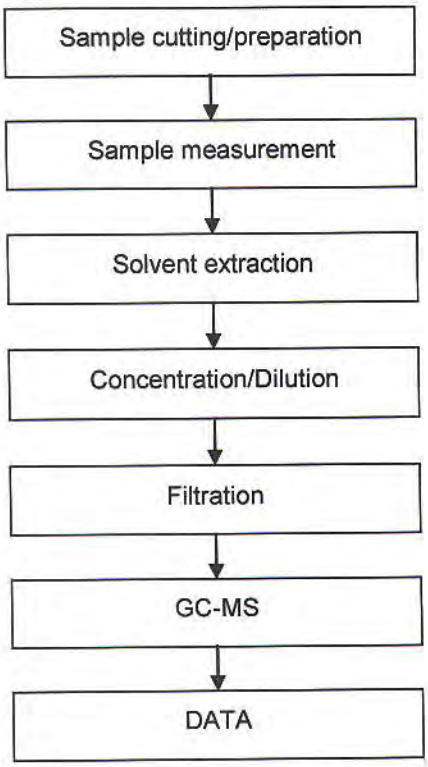
RoHS Testing Flow Chart

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)



Phthalates Testing Flow Chart

1) Name of the person who made testing: Elyn Yao
2) Name of the person in charge of testing: Rachel Zhang



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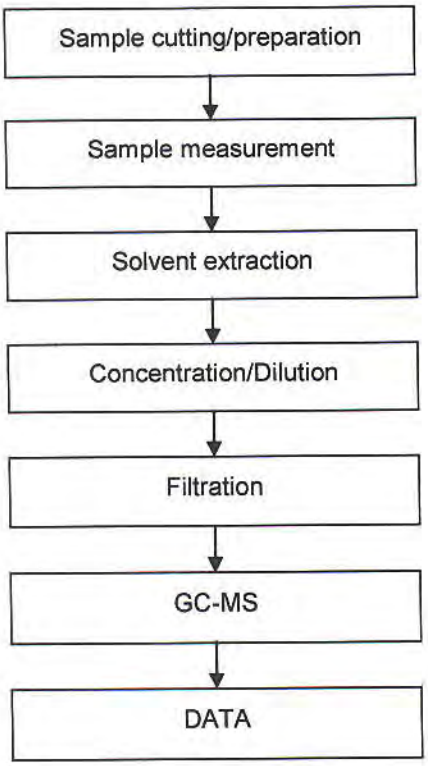
HBCDD Testing Flow Chart

1) Name of the person who made testing: Gary Xu
2) Name of the person in charge of testing: Jessy Huang



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Sample photo:

SHA12-199754.001

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*** End of Report ***

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TEST REPORT NUMBER: SH AH00334352

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

DATE: AUG 15, 2012

SAMPLE DESCRIPTION:
One (1) submitted sample said to be **White Yarn.**
Part Description : Yarn.
Part Number : 648102.

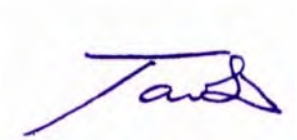
****

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.cn
China Toll-Free: 800 999 1338

TEST REPORT NUMBER: SH AH00334352

TESTS CONDUCTED

1 (Ⅰ) Test Result Summary：

TESTING ITEM R	ESULT (ppm)
HEAVY METAL	
CADMIUM (Cd) CONTENT	ND
LEAD (Pb) CONTENT	ND
MERCURY (Hg) CONTENT	ND
CHROMIUM VI (Cr^{6+}) CONTENT	ND
POLYBROMINATED BIPHENYLS (PBBs**)**	
MONOBROMINATED BIPHENYLS (MonoBB)	ND
DIBROMINATED BIPHENYLS (DiBB)	ND
TRIBROMINATED BIPHENYLS (TriBB)	ND
TETRABROMINATED BIPHENYLS (TetraBB)	ND
PENTABROMINATED BIPHENYLS (PentaBB)	ND
HEXABROMINATED BIPHENYLS (HexaBB)	ND
HEPTABROMINATED BIPHENYLS (HeptaBB)	ND
OCTABROMINATED BIPHENYLS (OctaBB)	ND
NONABROMINATED BIPHENYLS (NonaBB)	ND
DECABROMINATED BIPHENYL (DecaBB)	ND
POLYBROMINATED DIPHENYL ETHERS (PBDEs**)**	
MONOBROMINATED DIPHENYL ETHERS (MonoBDE)	ND
DIBROMINATED DIPHENYL ETHERS (DiBDE)	ND
TRIBROMINATED DIPHENYL ETHERS (TriBDE)	ND
TETRABROMINATED DIPHENYL ETHERS (TetraBDE)	ND
PENTABROMINATED DIPHENYL ETHERS (PentaBDE)	ND
HEXABROMINATED DIPHENYL ETHERS (HexaBDE)	ND
HEPTABROMINATED DIPHENYL ETHERS (HeptaBDE)	ND
OCTABROMINATED DIPHENYL ETHERS (OctaBDE)	ND
NONABROMINATED DIPHENYL ETHERS (NonaBDE)	ND
DECABROMINATED DIPHENYL ETHER (DecaBDE)	ND
HALOGEN CONTENT	
FLUORINE (F)	ND
CHLORINE (Cl)	ND
BROMINE (Br)	ND
IODINE (I)	ND

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

RESPONSIBILITY OF CHEMIST: DENT FANG / KEN HE

****

TO BE CONTINUED

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China Toll-Free: 800 999 1338

TEST REPORT NUMBER: SH AH00334352

TESTS CONDUCTED

(Ⅱ) ROHS REQUIREMENT:

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

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

(Ⅲ) TEST METHOD:

TESTING ITEM TE	STING 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

Date Sample Receive:AUG.9, 2012
Test Period: AUG.9, 2012 To AUG.15, 2012

RESPONSIBILITY OF CHEMIST: KEN HE

****

TO BE CONTINUED

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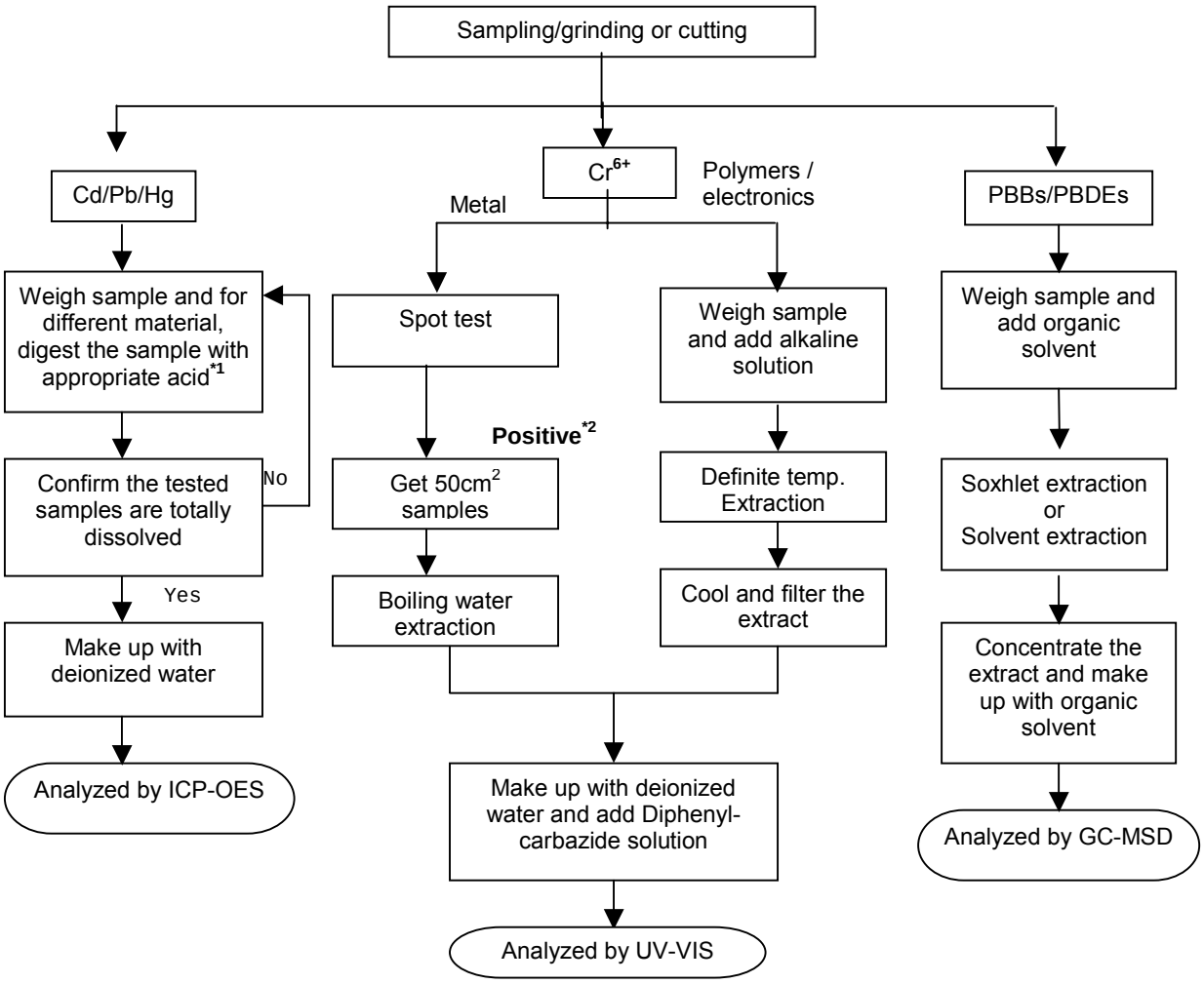
China Toll-Free: 800 999 1338

TEST REPORT NUMBER: SH AH00334352

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



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TO BE CONTINUED

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TEST REPORT NUMBER: SH AH00334352

TESTS CONDUCTED

REMARKS:

*1: LIST OF APPROPRIATE ACID:

MATERIAL	ACID ADDED FOR DIGESTION
POLYMERS	HNO_3,HCL,HF,H_2O_2,H_3BO_3
METALS	HNO_3,HCL,HF
ELECTRONICS	HNO_3,HCL,H_2O_2,HBF_4

*2: IF THE RESULT OF SPOT TEST IS POSITIVE, CHROMIUM (VI) WOULD BE DETERMINED AS DETECTED.

****

TO BE CONTINUED

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TEST REPORT NUMBER: SH AH00334352

TESTS CONDUCTED

2 (Ⅰ) Test Result Summary :

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

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

(Ⅲ) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

****

TO BE CONTINUED

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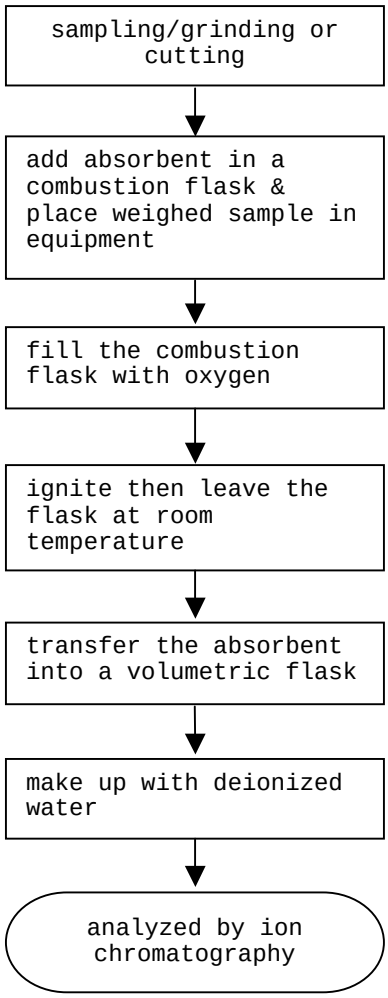
TEST REPORT NUMBER: SH AH00334352

TESTS CONDUCTED
(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



****

TO BE CONTINUED

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China Toll-Free: 800 999 1338

TEST REPORT NUMBER: SH AH00334352

TESTS CONDUCTED

****

END OF REPORT

TEST REPORT NUMBER: SH AH00355828

APPLICANT: LITTELFUSE,INC. DATE: DEC 13, 2012
800 E. NORTHWEST HWY
AT TN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
ONE (1) SUBMITTED SAMPLE SAID TO BE **WHITE POWDER.**
ITEM NAME : FILLER.
PART NO. : 090187.

****

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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上海天祥質量技術服務有限公司
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www.intertek.com www.intertek.com.cn

TEST REPORT NUMBER: SH AH00355828

TESTS CONDUCTED

1 (Ⅰ) Test Result Summary：

TESTING ITEM R	ESULT (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

(Ⅱ) ROHS REQUIREMENT：

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

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

****

TO BE CONTINUED

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TESTS CONDUCTED

2 (Ⅰ) Test Result Summary：

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

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

(Ⅲ) TEST METHOD：

TESTING ITEM T	ESTING METHOD	REPORTING LIMIT
HALOGEN CONTENT	WITH REFERENCE TO EN 14582:2007 BY COMBUSTION FLASK WITH OXYGEN AND DETERMINED BY ION CHROMATOGRAPHY	50 ppm

****

TO BE CONTINUED

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

TEST REPORT NUMBER: SH AH00355828

TESTS CONDUCTED

(III) TEST METHOD：

TESTING ITEM T	ESTING 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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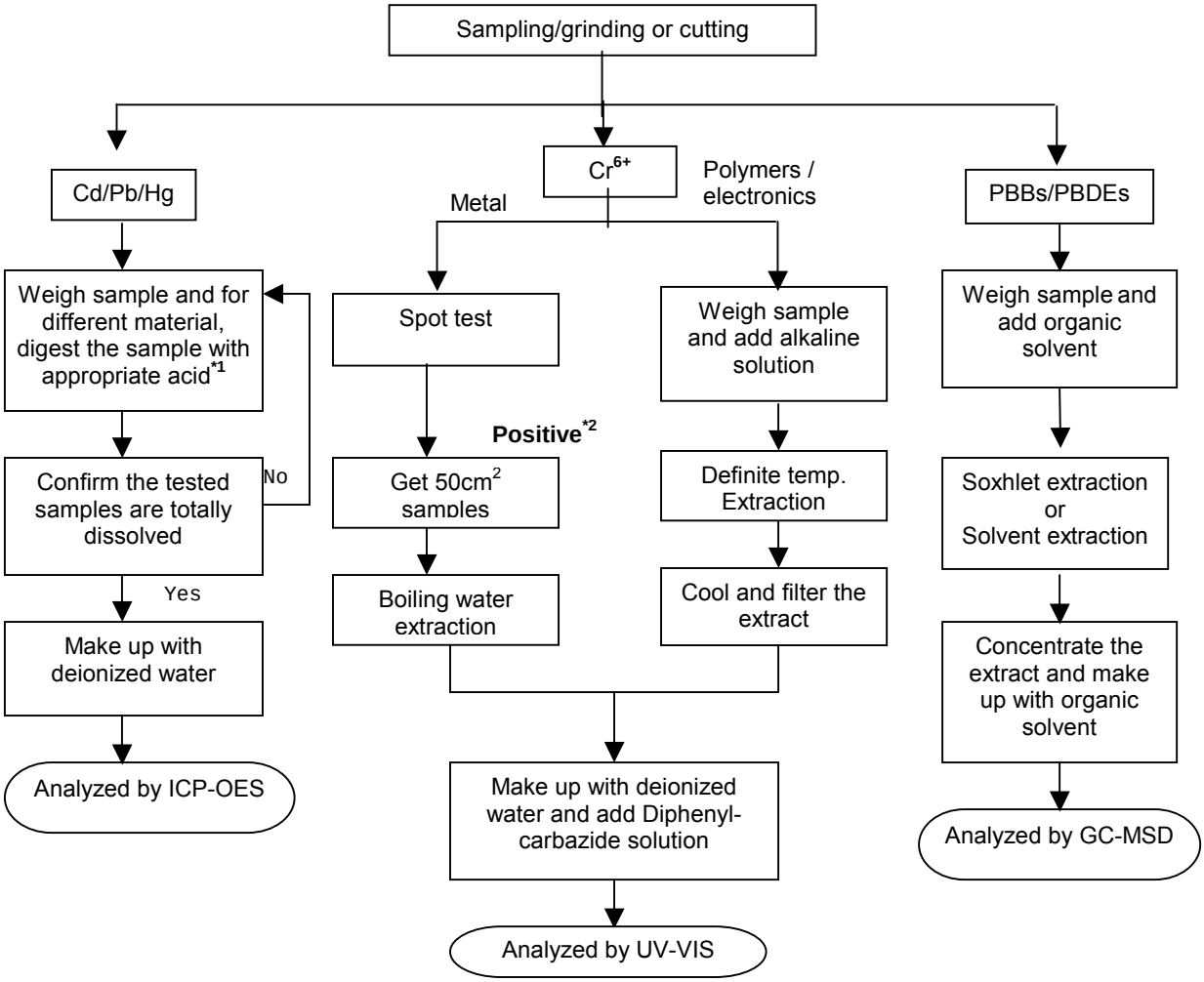
TESTS CONDUCTED

(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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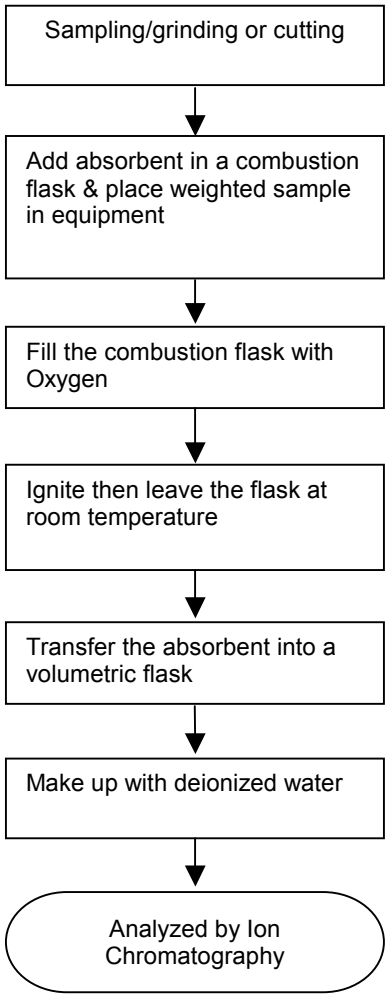
TESTS CONDUCTED

(Ⅴ) MEASUREMENT FLOWCHART：
TEST FOR HALOGEN CONTENT
REFERENCE STANDARD： EN 14582



****

TO BE CONTINUED

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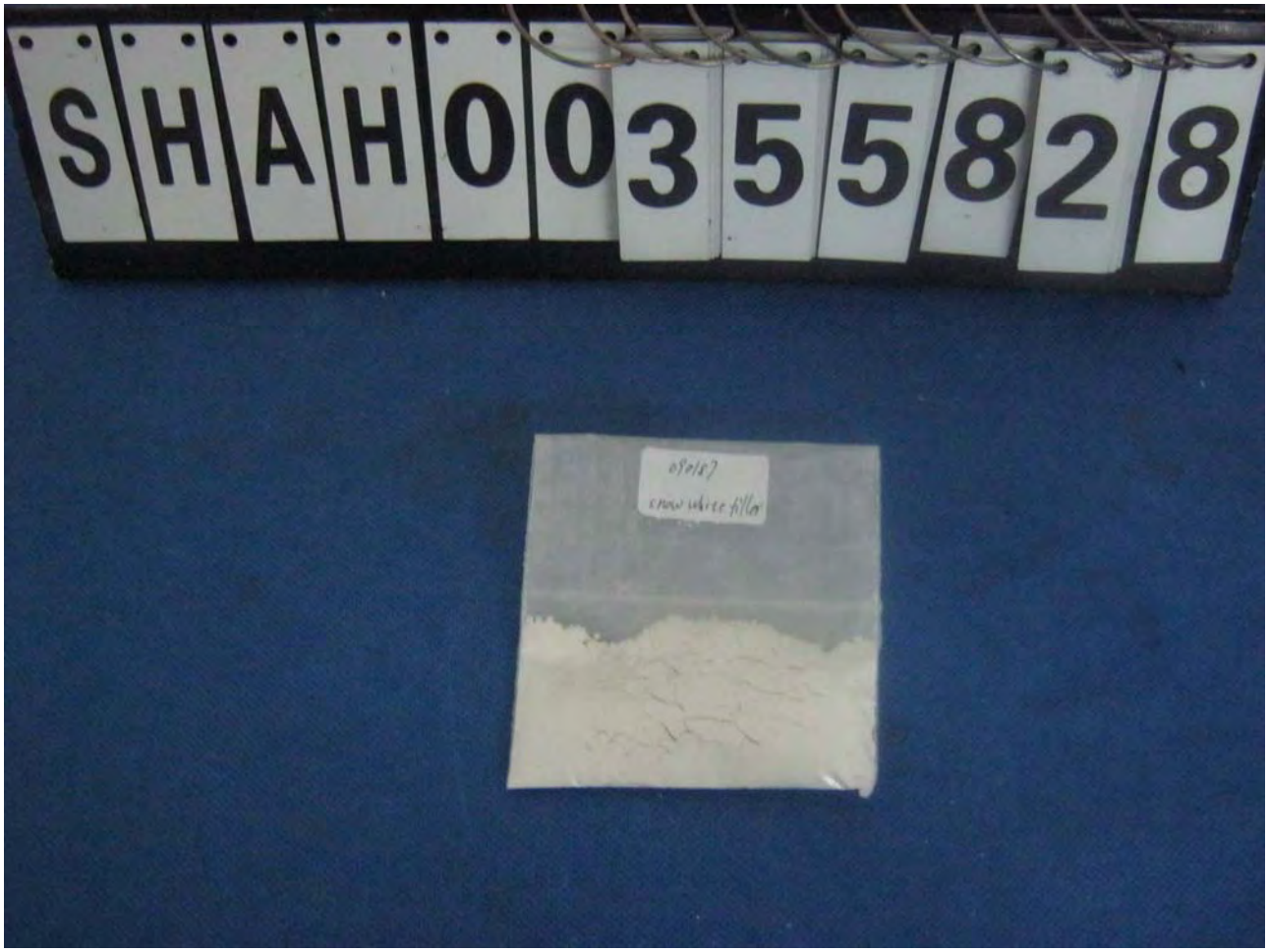
TEST REPORT NUMBER: SH AH00355828

TESTS CONDUCTED



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END OF REPORT

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

TEST REPORT NUMBER: SH AH00355836

APPLICANT: LITTELFUSE,INC. DATE: DEC 13, 2012
800 E. NORTHWEST HWY
AT TN: A.DIVIETRO/D.UNTIEDT

SAMPLE DESCRIPTION:
ONE(1) SUBMITTED SAMPLE SAID TO BE **BEIGE POWDER.**
ITEM NAME : FILLER.
PART NO. : 090184.

****

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

TEST REPORT NUMBER: SH AH00355836

TESTS CONDUCTED

1 (Ⅰ) Test Result Summary：

TESTING ITEM R	ESULT (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 LIM	ITS
CADMIUM (Cd) CONTENT	0.01% (100ppm)
LEAD (Pb) CONTENT	0.1% (1000ppm)
MERCURY (Hg) CONTENT	0.1% (1000ppm)
CHROMIUM VI (Cr^{6+}) CONTENT	0.1% (1000ppm)
POLYBROMINATED BIPHENYLS (PBBs)	0.1% (1000ppm)
POLYBROMINATED DIPHENYL ETHERS (PBDEs)	0.1% (1000ppm)

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

****

TO BE CONTINUED

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TEST REPORT NUMBER: SH AH00355836

TESTS CONDUCTED

(III) TEST METHOD：

TESTING ITEM T	ESTING 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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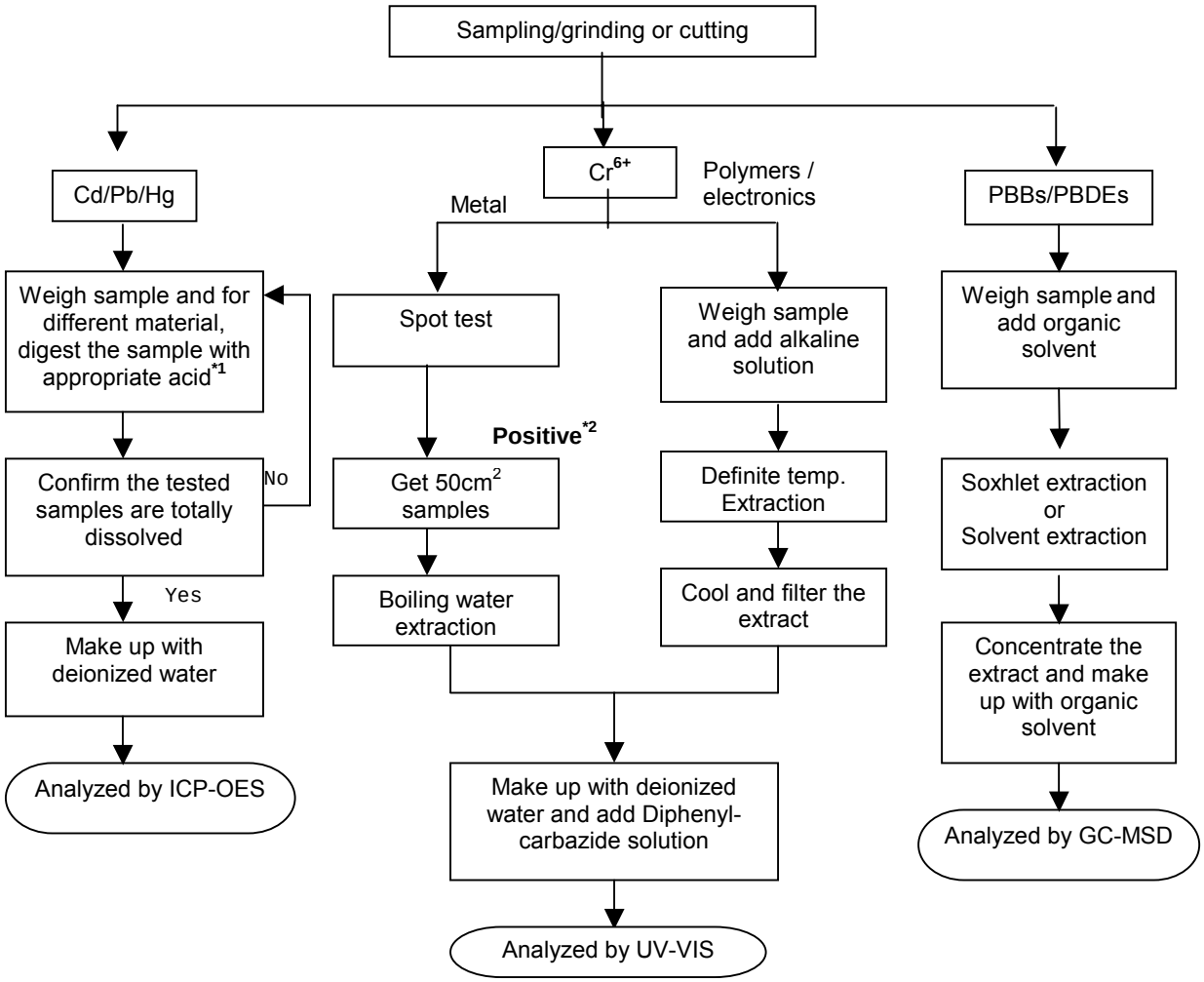
TESTS CONDUCTED

(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

Intertek Testing Services Ltd., Shanghai
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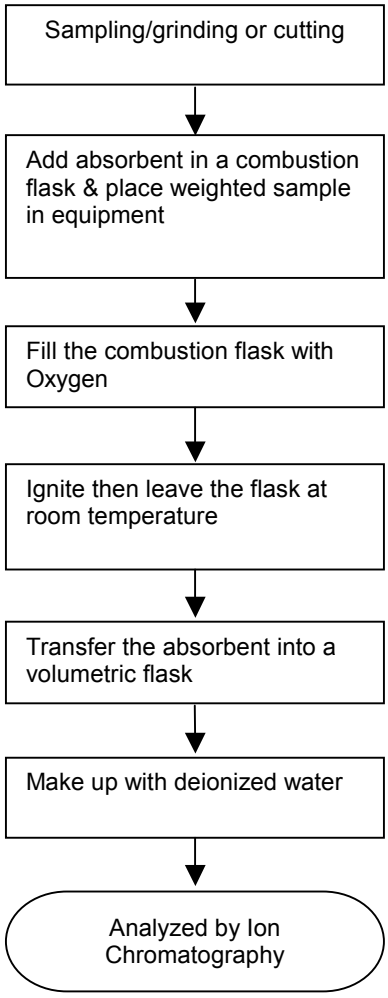
TESTS CONDUCTED

(Ⅴ) MEASUREMENT FLOWCHART：

TEST FOR HALOGEN CONTENT

REFERENCE STANDARD： EN 14582



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TO BE CONTINUED

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TESTS CONDUCTED

2 (Ⅰ) Test Result Summary :

Testing Item	Result (ppm)
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	100
Bromine (Br)	ND
Iodine (I)	ND

Remarks: ppm = Parts per million = mg/kg

N D = Not detected

Responsibility Of Chemist : Grace Wang

(III) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

Date Sample Received : Dec.5, 2012

Testing Period : Dec.5, 2012 To Dec.11, 2012

****

TO BE CONTINUED

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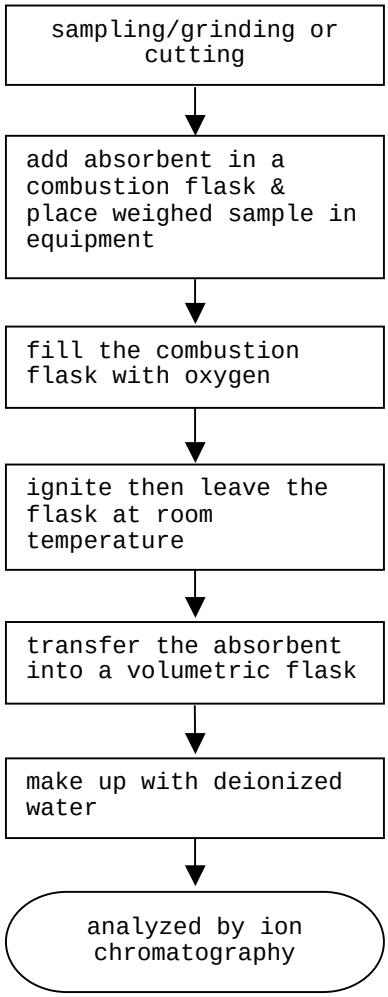
TESTS CONDUCTED
(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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TO BE CONTINUED

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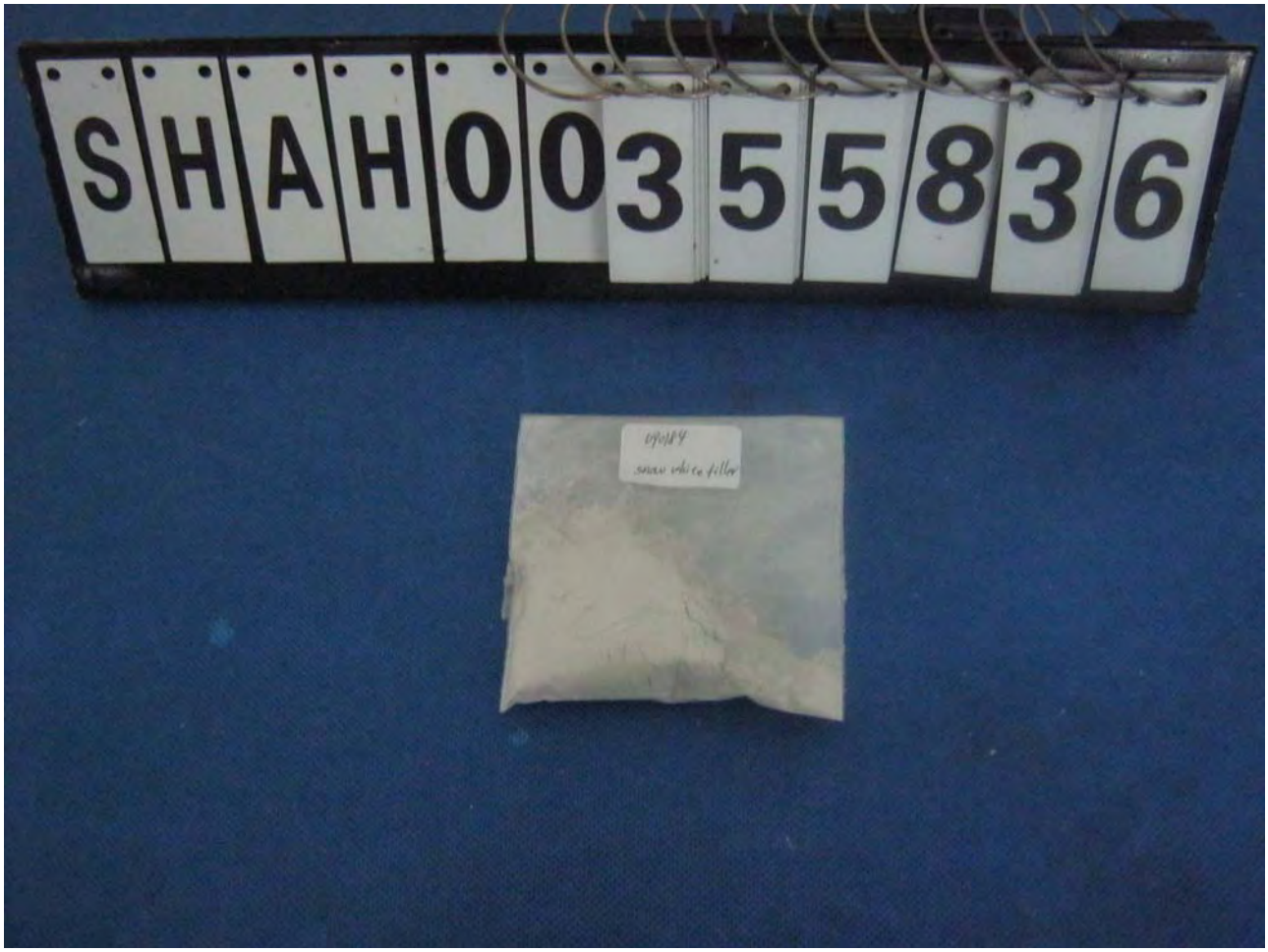
TEST REPORT NUMBER: SH AH00355836

TESTS CONDUCTED



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END OF REPORT

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TEST REPORT NUMBER: SH AH00345432

APPLICANT: LITTELFUSE,INC. DATE: OCT 29, 2012
800 E. NORTHWEST HWY
AT TN: 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

TEST REPORT NUMBER: SH AH00345432

TESTS CONDUCTED

1 (Ⅰ) Test Result Summary :

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

(Ⅲ) Test Method:

Testing Item T	esting Method R	eporting 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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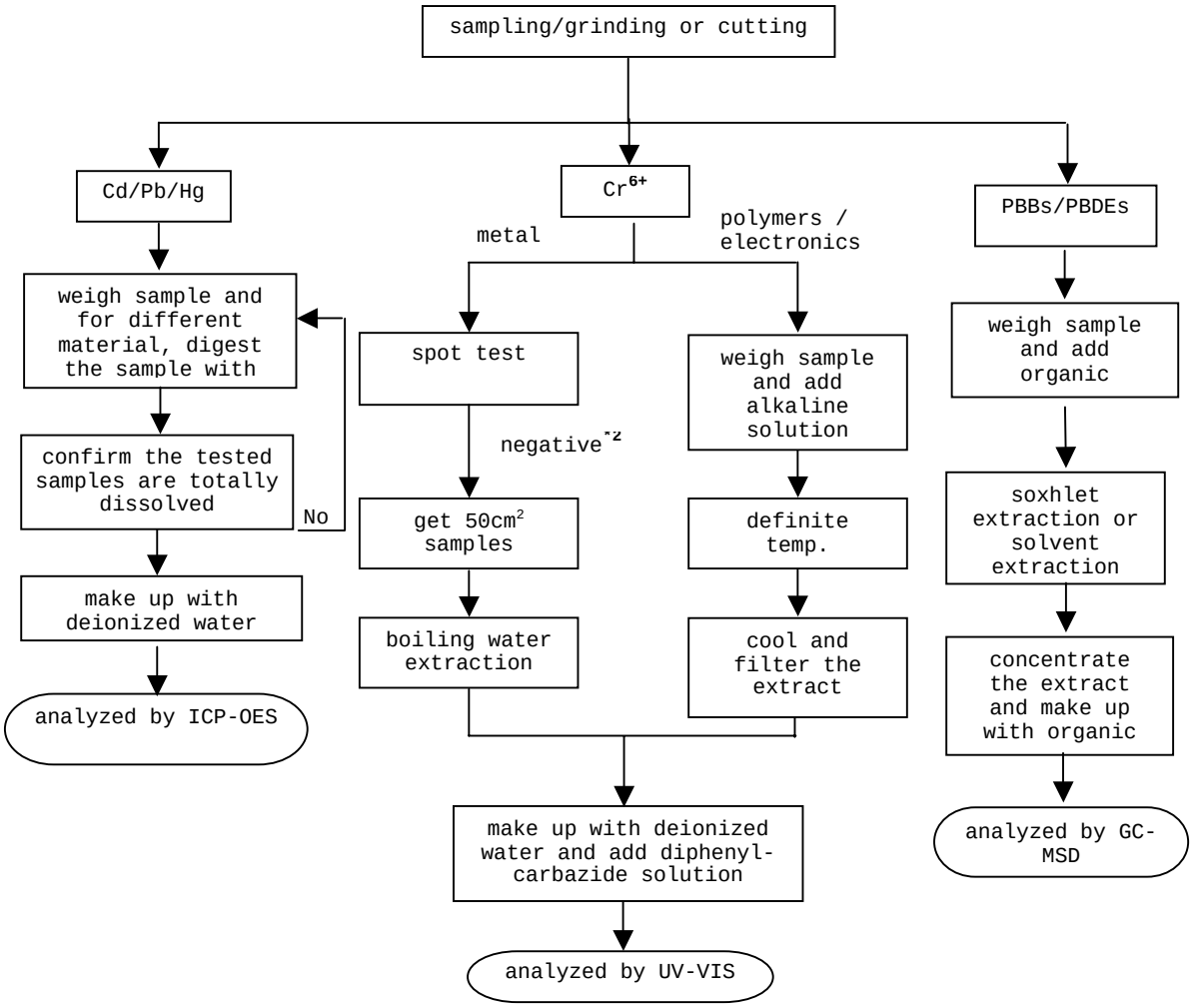
TESTS CONDUCTED

(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 H	NO_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)	8600
Bromine (Br)	ND
Iodine (I)	ND

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

Responsibility Of Chemist : Leaf Liu

(Ⅲ) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample

****

TO BE CONTINUED

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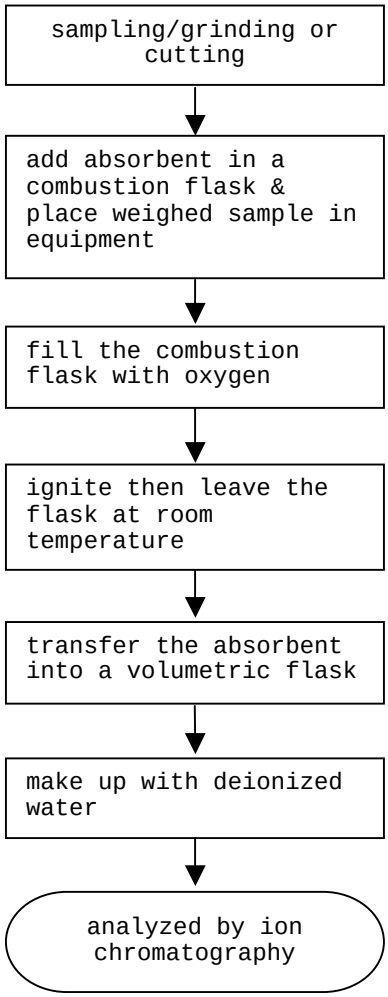
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

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

(B) TEST METHOD :

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

****

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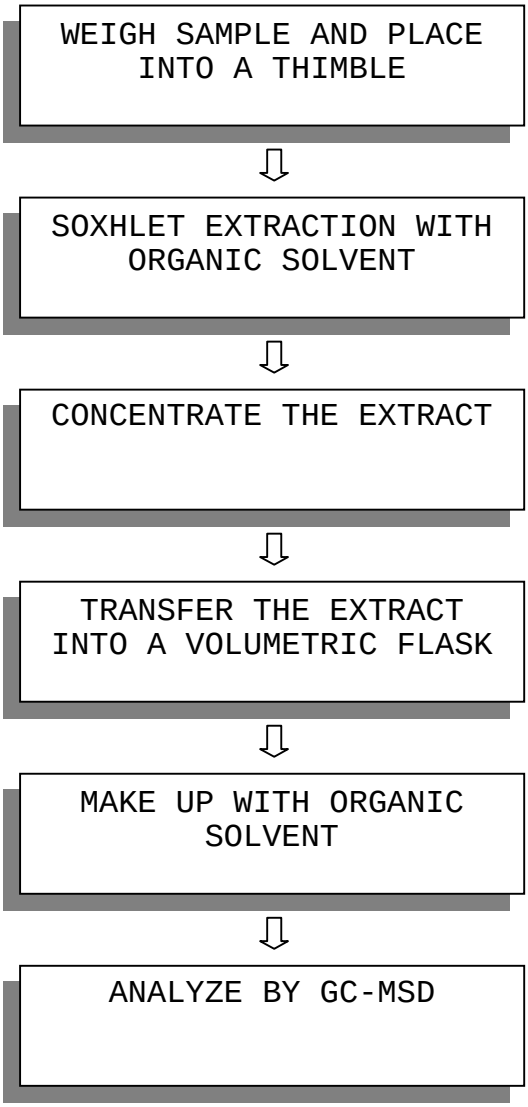
TESTS CONDUCTED

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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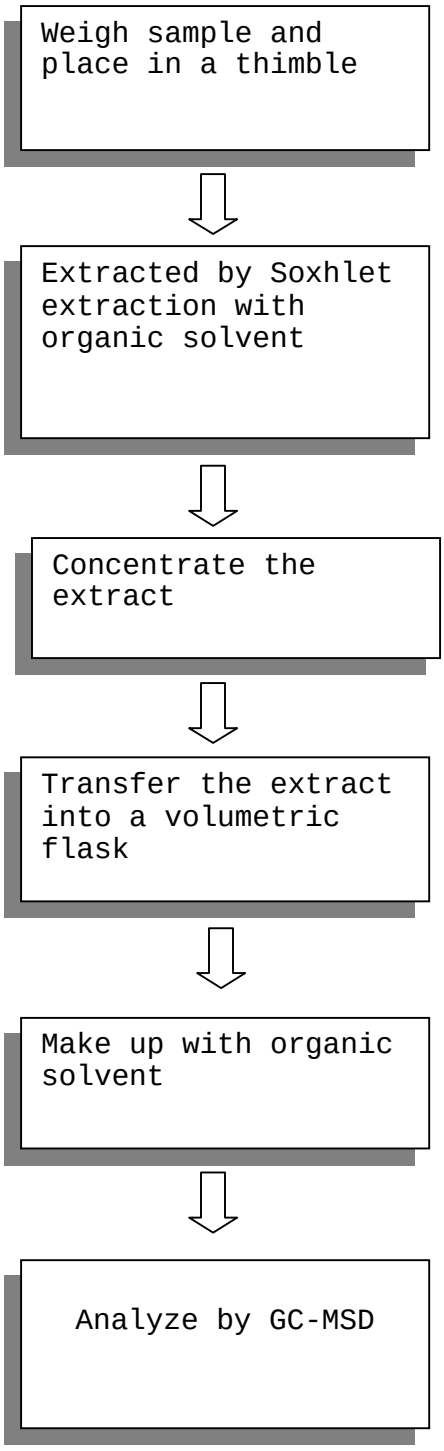
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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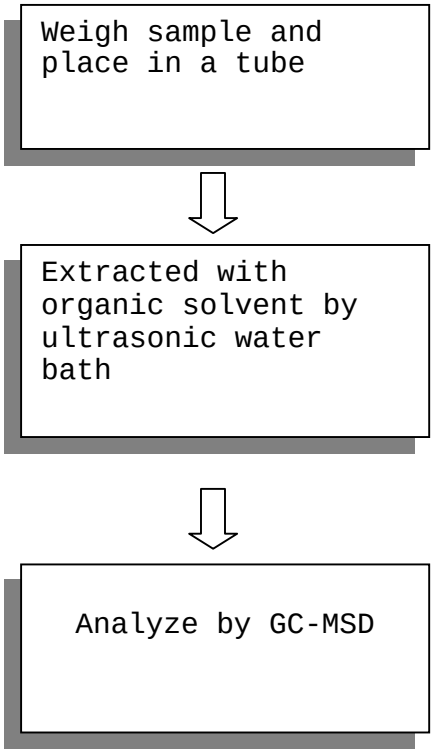
TESTS CONDUCTED
MEASUREMENT FLOWCHART:

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



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TO BE CONTINUED

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TEST REPORT NUMBER: SH AH00345432

TESTS CONDUCTED

****

END OF REPORT

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TEST REPORT NUMBER: SH AH00345635

APPLICANT: LITTELFUSE,INC. DATE: OCT 29, 2012
800 E. NORTHWEST HWY
ATT N: 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)

****

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 T	esting Method R	eporting 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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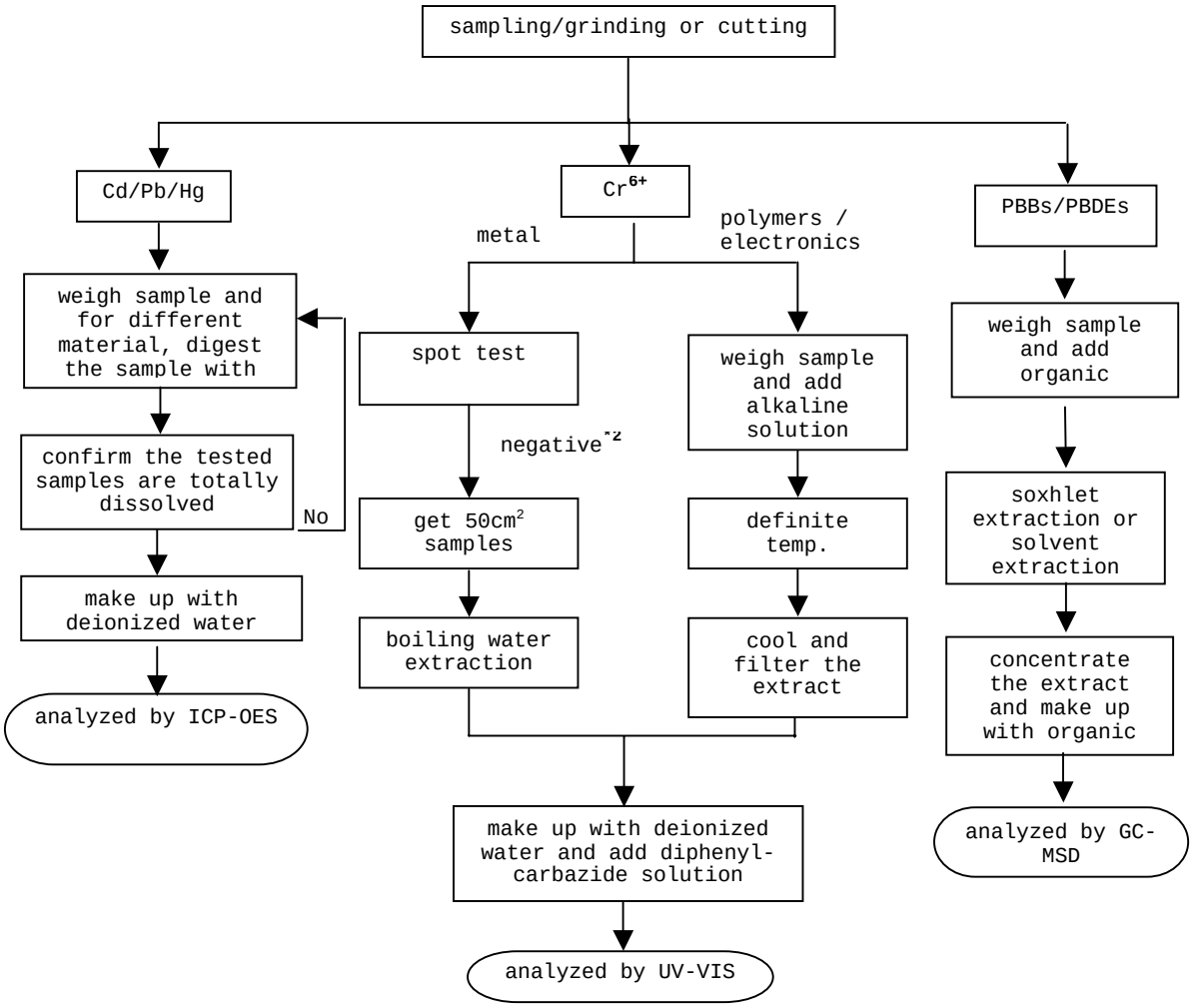
TESTS CONDUCTED

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

Remark: Reporting limit = Quantitation limit of analyte in sample

****

TO BE CONTINUED

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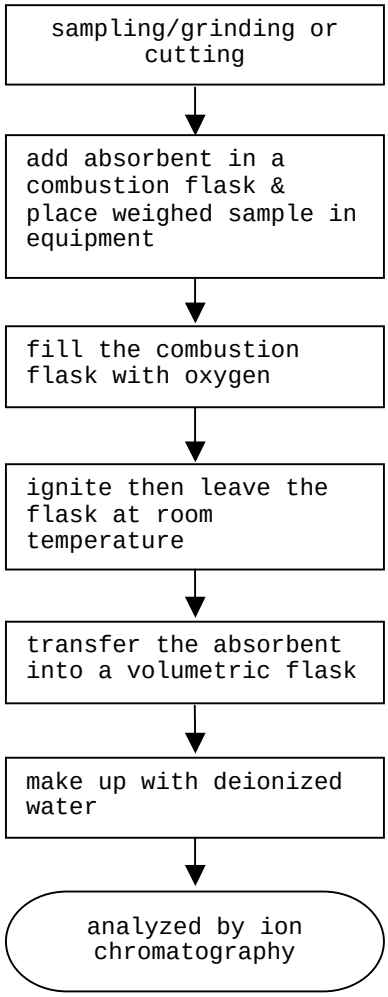
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

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

(B) TEST METHOD :

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

****

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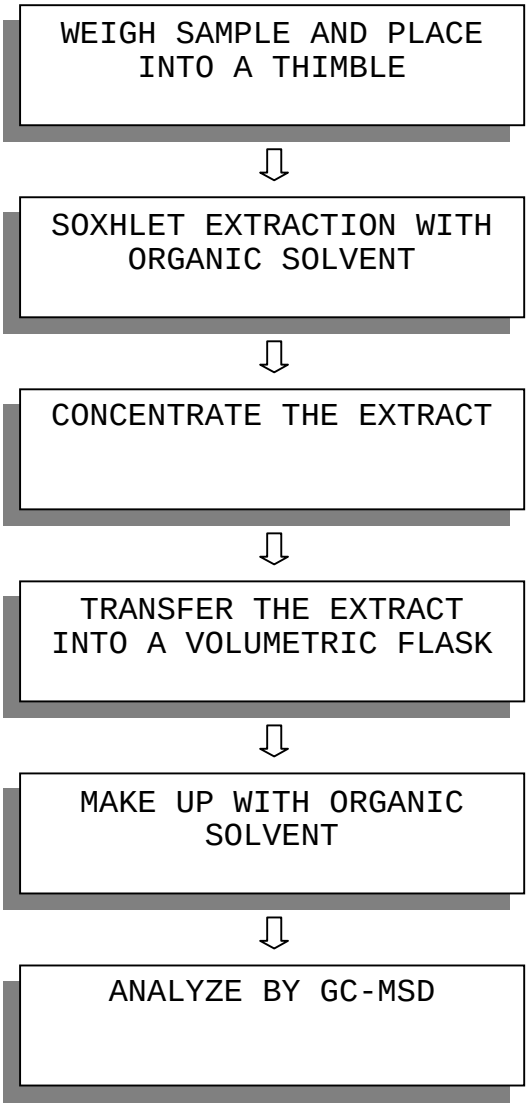
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

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

TESTED COMPOUND R	ESULT (%,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 PHT HALATE CONTENT TEST

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

TESTED COMPOUND R	ESULT (%,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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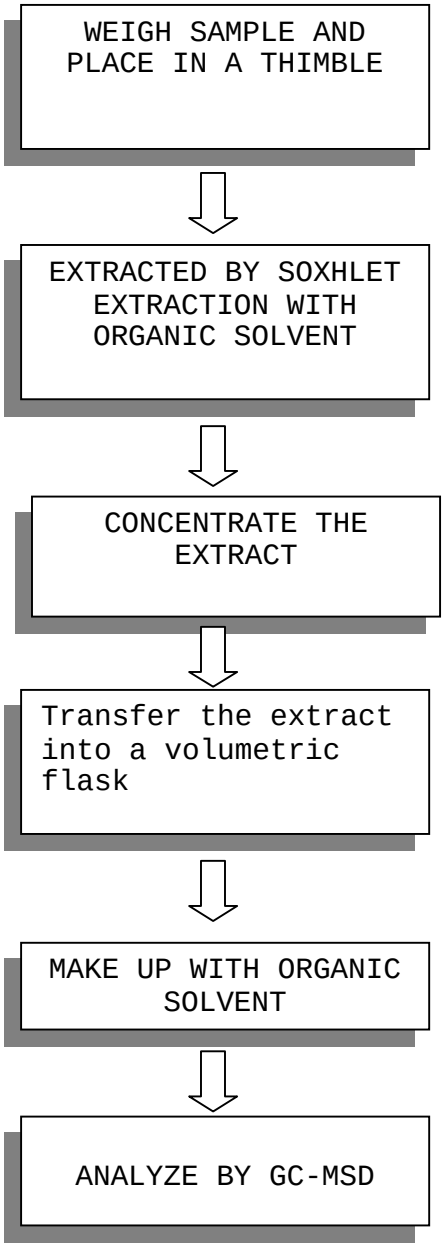
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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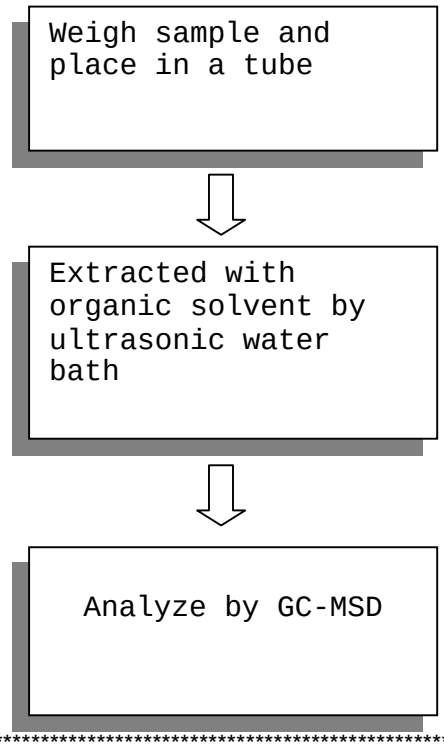
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



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TESTS CONDUCTED

****

END OF REPORT

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TEST REPORT NUMBER: SH AH00345639

APPLICANT: LITTELFUSE,INC. DATE: OCT 29, 2012
800 E. NORTHWEST HWY
ATT N: 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 T	esting Method R	eporting 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

Intertek Testing Services Ltd., Shanghai
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上海天祥質量技術服務有限公司
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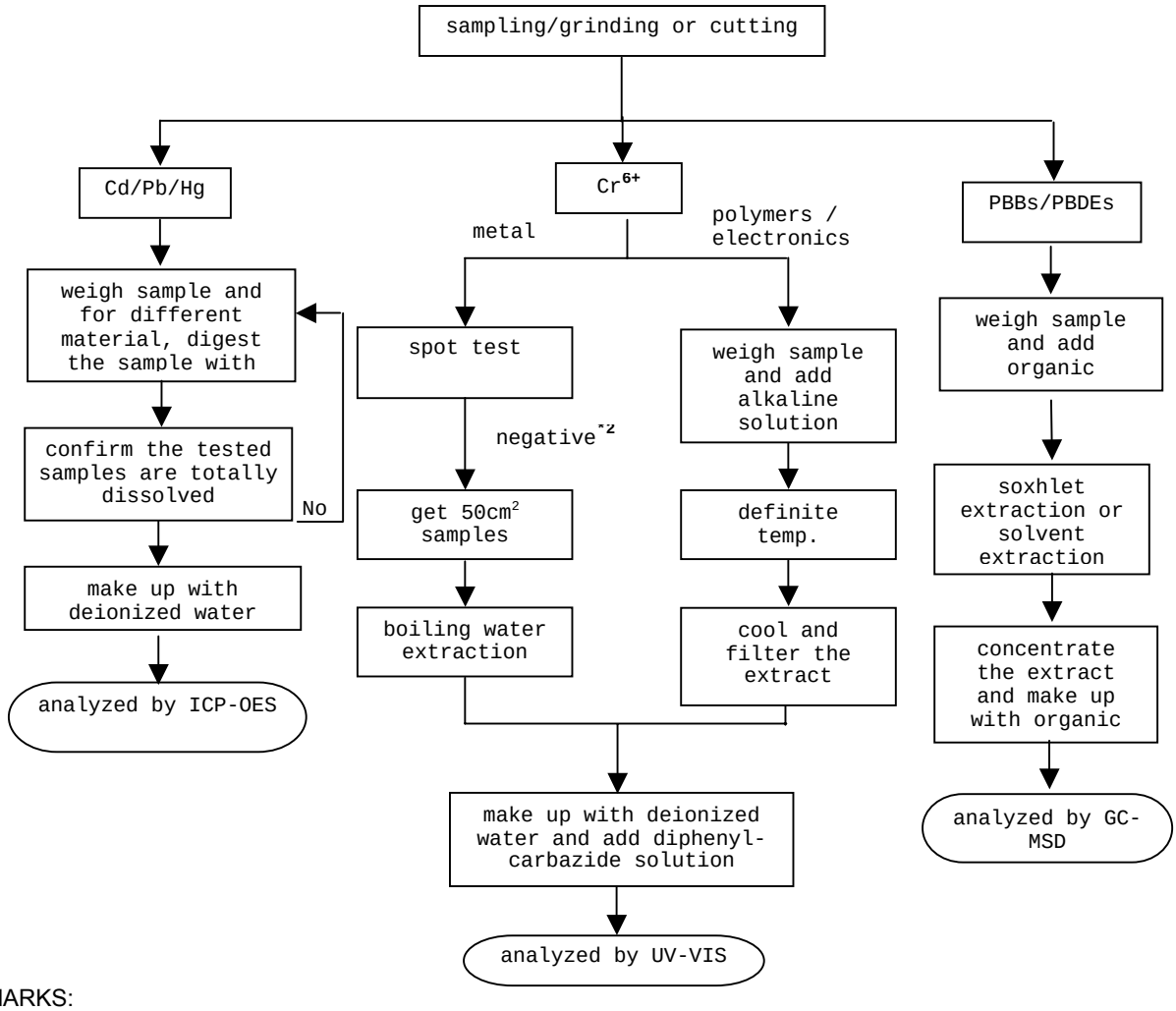
TESTS CONDUCTED

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

Remark: Reporting limit = Quantitation limit of analyte in sample

****

TO BE CONTINUED

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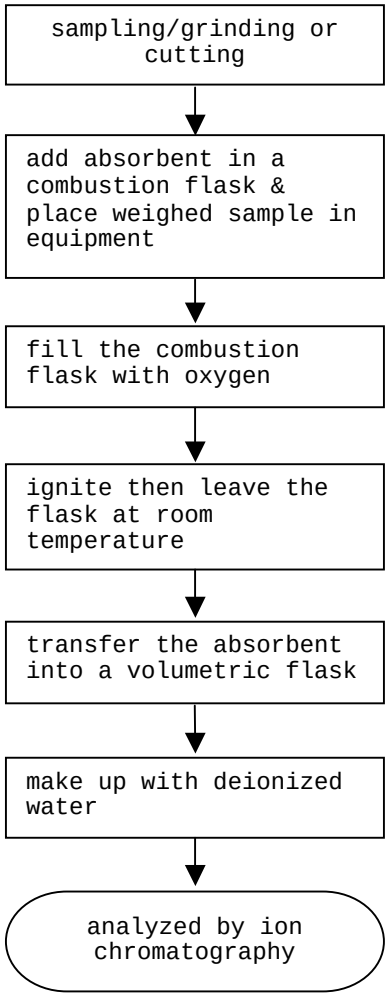
TESTS CONDUCTED

(Ⅳ) Measurement Flowchart:

Test For Halogen Content
Reference Standard： EN 14582



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TO BE CONTINUED

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TESTS CONDUCTED

3 (A) TEST RESULT SUMMARY:

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

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

(B) TEST METHOD :

TESTING ITEM TE	STING 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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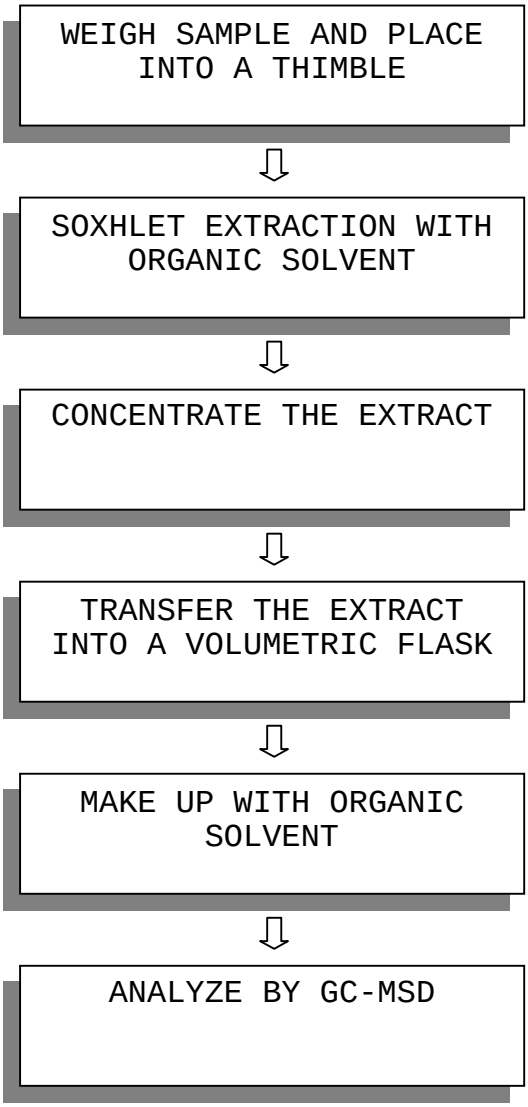
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR HBCD (HEXABROMOCYCLODODECANE) CONTENT



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TO BE CONTINUED

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TESTS CONDUCTED

4 PHT HALATE CONTENT TEST

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

TESTED COMPOUND R	ESULT (%,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 PHT HALATE CONTENT TEST

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

TESTED COMPOUND R	ESULT (%,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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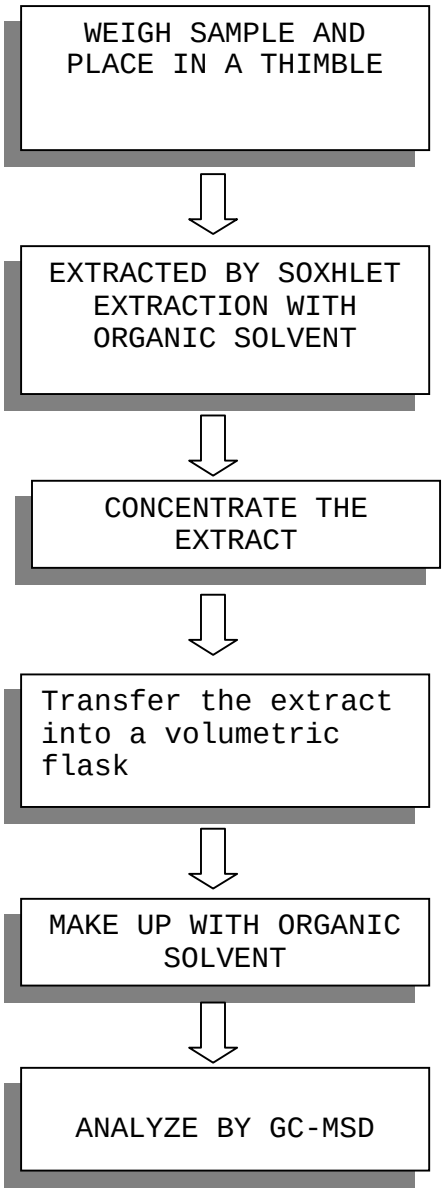
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR PHTHALATES CONTENTS (EN14372)



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TO BE CONTINUED

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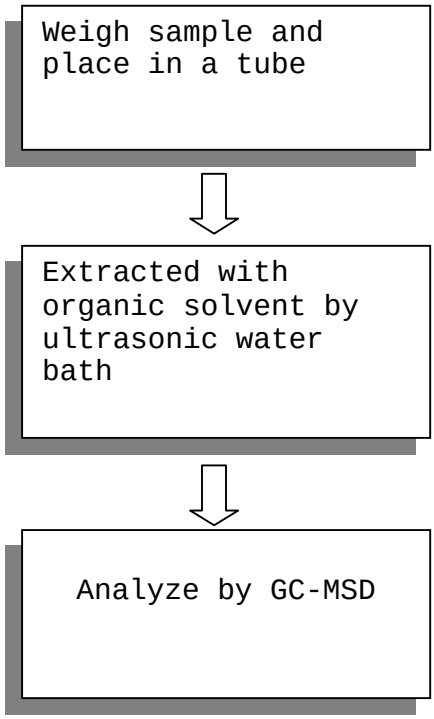
TESTS CONDUCTED

MEASUREMENT FLOWCHART:

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



****

TO BE CONTINUED

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TEST REPORT NUMBER: SH AH00345639

TESTS CONDUCTED

****

END OF REPORT

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

Polyfil AG
Gina Gregorio
Oberallmendstrasse 20A

6300 Zug / Switzerland

Fürth, 2012-12-19

Test report No. FUHL1236941

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

Sample description: **Ni99.9MAg wire**

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

This report consists of 6 page(s).
The test methods signed with * are not listed in the attachment of the accreditation certificate.

Conclusion based on tested item

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

° Please see overview of test results

- Test results see next pages -

Sample description: **Ni99.9MAg wire**

nM = non Metal
M = Metal
cM = composite Material

List of component parts:

Sample No.	Part No.	Material	Description
236941	**1**	M	Ni99.9MAg wire

Sample description: **Ni99.9MAg wire**

Comment

LOD = Limit of Detection

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

CS = Composite sample

Remark:

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

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

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

Sample description: **Ni99.9MAg wire**

1. XRF screening

Method: XRF according to IEC 62321:2008*

Sample No.	Part No.	Pb	Hg	Cd	Cr_{total}	Br	Status
236941	1	BL	BL	BL	BL	--	conform

Comment:

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

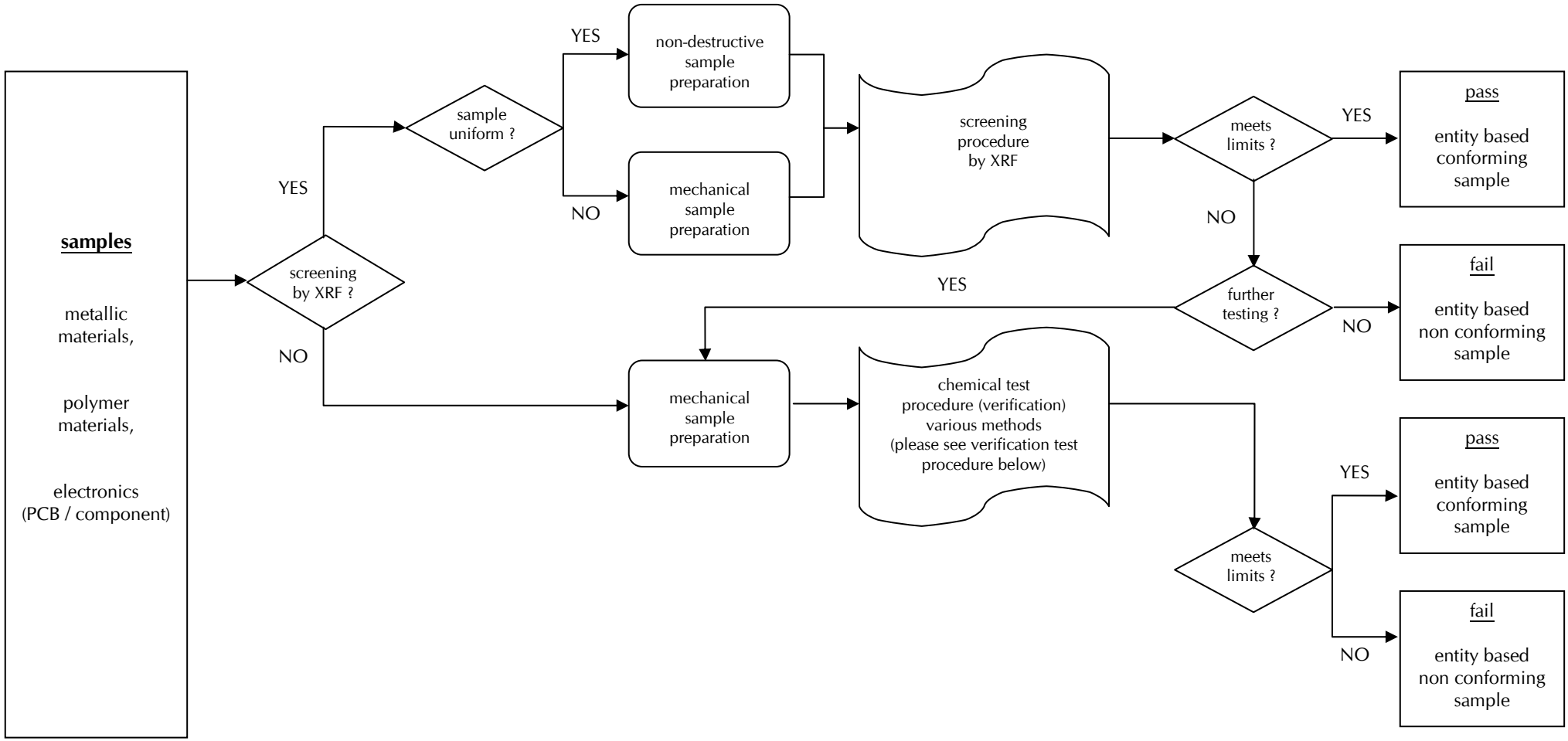
Intertek Consumer Goods GmbH

Prüfleitung / Lab Manager

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

- Flow charts see next page(s) -

Test procedure



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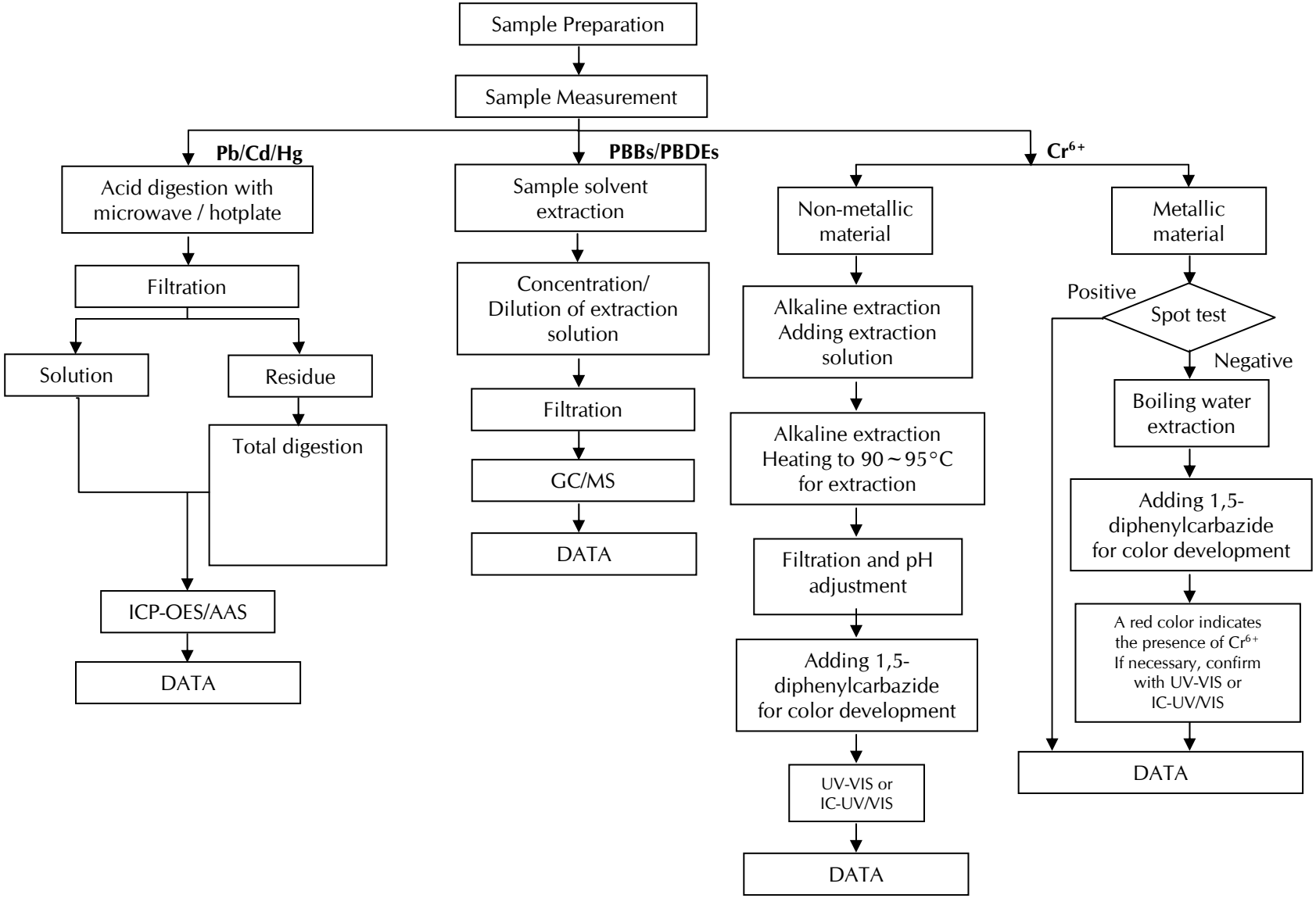
cg.germany@intertek.com

Sitz Fürth
Amtsgericht Fürth, HRB 5756
Ust-IdNr. DE169317871

Geschäftsführer
Kay Grönhardt
Rainer Mast

Verification test procedure



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Sitz Fürth
Amtsgericht Fürth, HRB 5756
Ust-IdNr. DE169317871

Geschäftsführer
Kay Grönhardt
Rainer Mast

Test Report Number: SHAH0036227401

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

Date: JAN 18, 2013

Sample Description:

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

(1) Mixed all kinds of metal substrates.

(2) Mixed all kinds of plating layers.

Item Name : Silver Plated & Pure Silver Wires.

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

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

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

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

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

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

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

Country Of Origin : Germany.

****

Tests Conducted:

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

****

To Be Continued

Authorized by:
For intertek testing services Ltd., Shanghai

Jacob Lin
General Manager

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

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Test Report Number： SHAH0036227401

Tests Conducted

(A) Test result of RoHS Directive：

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

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

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

(B) RoHS Requirement：

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

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

(C) Test method：

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

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

****

To Be Continued

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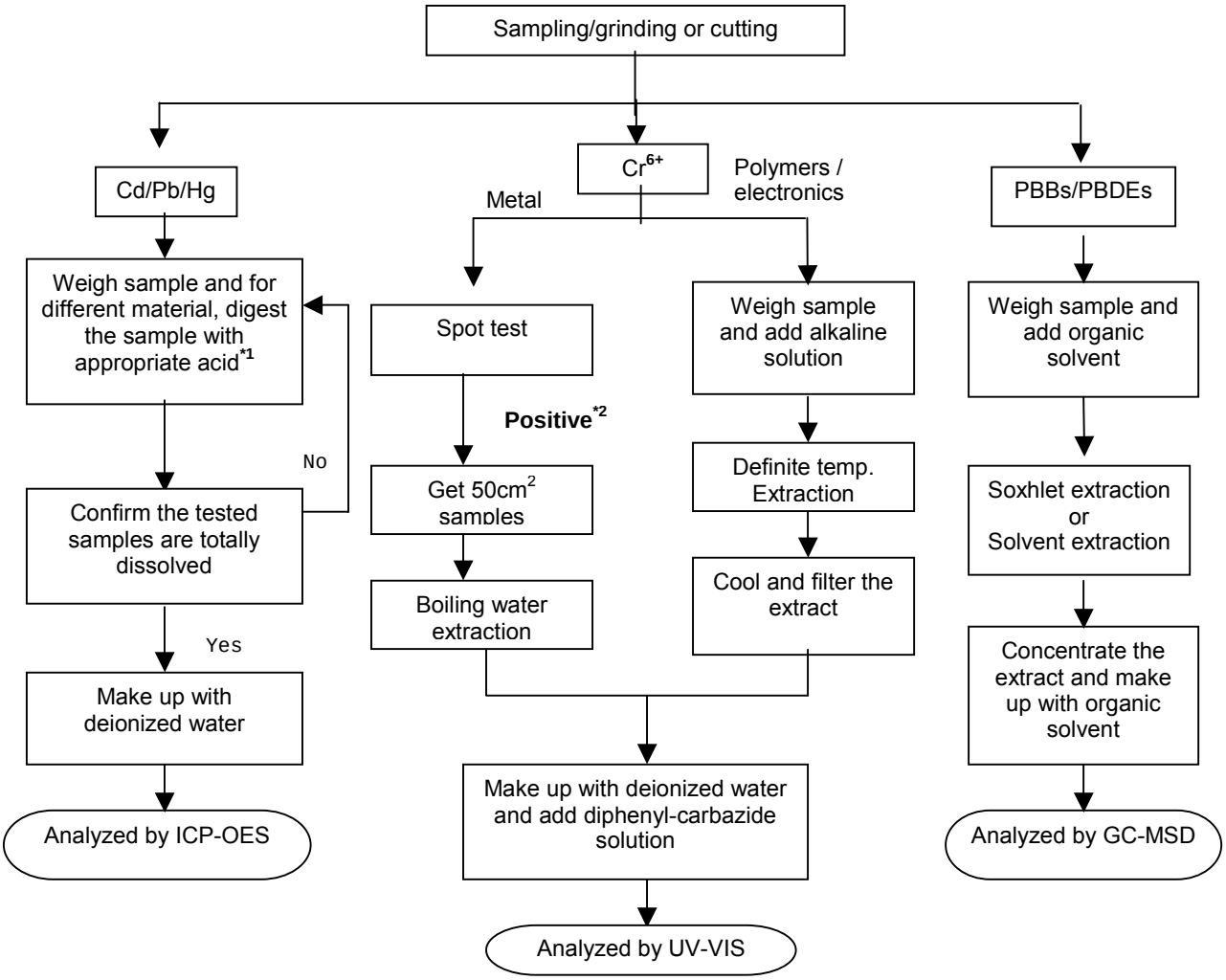
Tests Conducted

(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 H	NO_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

****

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Test Report Number： SHAH0036227401

Tests Conducted

****

End Of Report

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

TEST REPORT NUMBER: SH AH00350858

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

SAMPLE DESCRIPTION:
ONE(1) SUBMITTED SAMPLE SAID TO BE **SILVERY SPRING WITH PLATING.**

PART DESCRIPTION	:	SPRING.
PART NUMBER	:	912-337.
DATE SAMPLE RECEIVED	:	NOV.09, 2012.
DATE TEST STARTED	:	NOV.09, 2012.

****

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

****

TO BE CONTINUED

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES LTD., SHANGHAI

JACOB LIN
GENERAL MANAGER

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TEST REPORT NUMBER: SH AH00350858

TESTS CONDUCTED

(Ⅰ) Test Result Summary :

Testing Item	Result (ppm)
	(1)
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	40
Mercury (Hg) content	ND
Chromium VI (Cr^{6+}) content (mg/kg with $50cm^2$)	Negative (< 0.02)

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

Remarks: ppm = Parts per million = mg/kg

N D = Not detected

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

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

Responsibility Of Chemist : Dent Fang / Leaf Liu

Tested Components:
(1)Substrate
(2)Plating

(Ⅱ) RoHS Requirement:

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

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

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TO BE CONTINUED

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TESTS CONDUCTED

(III) Test Method:

Testing Item T	esting Method R	eporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr^{6+}) content	With reference to IEC 62321 edition 1.0:2008 in annex B, by boiling water extraction and determined by UV-Vis spectrophotometer.	0.02 mg/kg with $50cm^2$

Remark: Reporting limit = Quantitation limit of analyte in sample

Date Sample Received： Nov.9, 2012
Testing Period : Nov.9, 2012 To Nov.15, 2012

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TO BE CONTINUED

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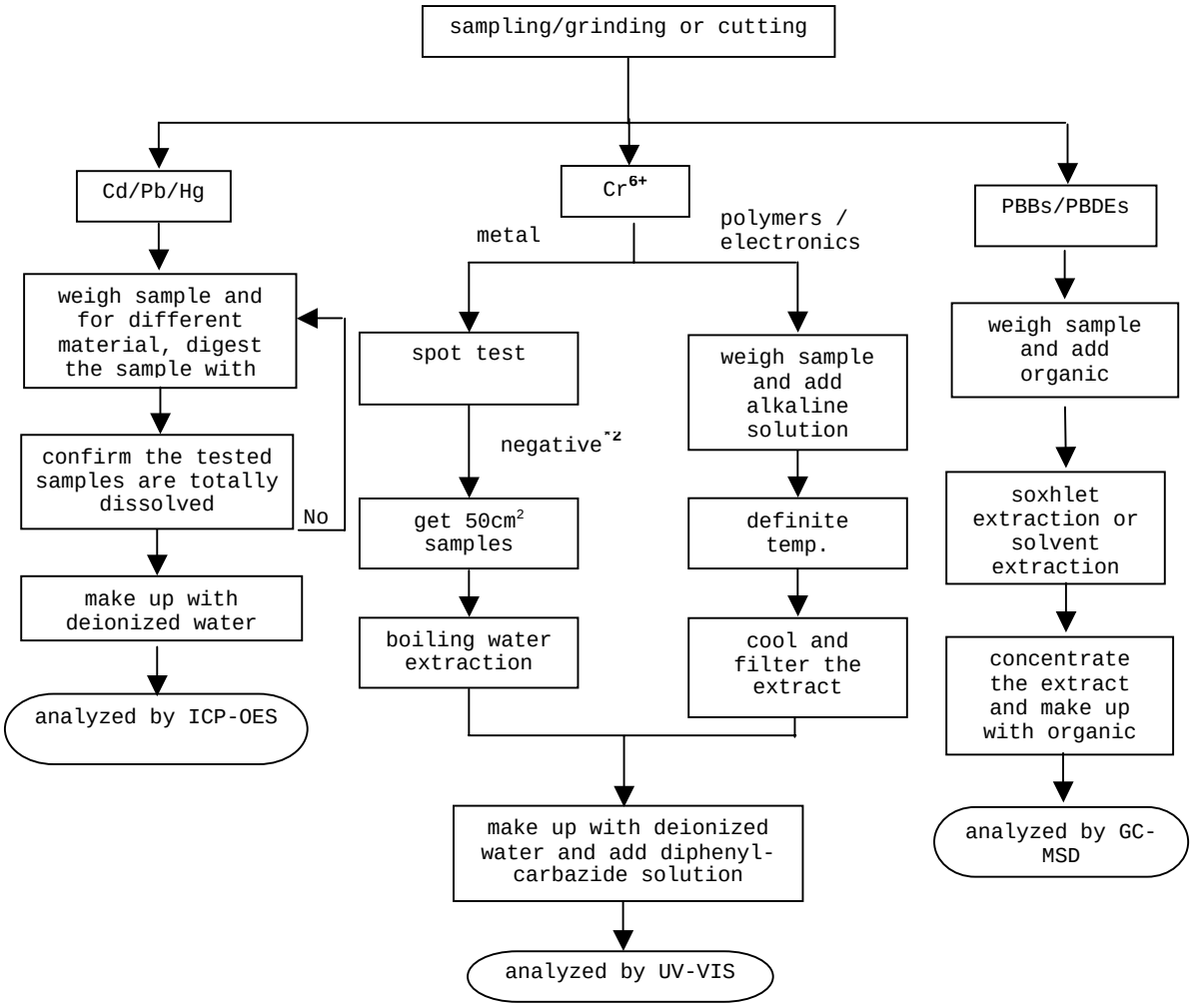
TESTS CONDUCTED

(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 H	NO_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 NUMBER: SH AH00350858

TESTS CONDUCTED

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END OF REPORT

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