



ICP Test Report Certification Packet

Company name: Littelfuse, Inc.
Product Series: P6KE, SA, SAC, 3T, P5KE Series
Product #: DO – 15 - TVS Diode
Issue Date: August 20, 2014

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: 
JORDANUFF H. CABILAN

[Global EHS Engineer]

(1) Parts, sub-materials and unit parts

This document covers the P6KE, SA, SAC, 3T RoHS-Compliant series products manufactured by Littelfuse, Inc.

< Raw Materials Used

Please see Table 1

(2) The ICP data on all measurable substances

Please see appropriate pages as identified in Table 1

Remarks : under RoHS Exemptions 5 (7c-1 in the New RoHS exemption) and 7a apply to these products.



Table 1: List of Raw Materials covered by this report

ICP ID	Raw Material Part Number	Raw Material Description	Page(s)	IPC
ICP-0027	Silicon+Nickel	Silicon wafer with Nickel plating	3-7	Metallization/Silicon Chip
ICP-0029	NA	Wafer PAssivation (Glass)	8-17	Passivation Chip
ICP-0030	Non Oxygen Copper	Lead Wire	18-21	Lead Frame/Leads
ICP-0031	Pb:Sn:Ag=92.5:5:2.5	Solder Wafer	22-28	Die Attach (Solder)
ICP-0042	Copper With Ag Plating	Copper spacer	29-32	Lead Frame/Leads
ICP-0028	EME-E110G	Epoxy Molding Compound	33-42	Molding Compound
ICP-0034	Pure Matte Tin	Tin Plating	43-46	Lead Finish
ICP-0035	NA	UV Ink - RoHS	47-55	UV Ink



Number : WUXH00023816

Applicant : LITTELFUSE SEMICONDUCTOR (WUXI) CO., LTD
3#, ZHENFA 6 ROAD, SHUO FANG NEW DISTRICT
WUXI, JIANGSU 214142, P.R.CHINA
Attn : ZHANG XIAOPENG

Date : Jul 25, 2014

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **Silvery Grey Metal.**
Item Name : Silicon Wafer With Nickel Plating.
Vendor : Littelfuse.
Component Or Part No. : Silicon+Nickel.
Test Item : Cd,Pb,Hg,CrVI,PBBs,PBDEs.
Remark : As Requested By The Applicant, Tested As A Whole And Sampled Randomly.

Tests Conducted:
As Requested By The Applicant, For Details Refer To Attached Pages

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.

Jessica Lu
General Manager





Number : WUXH00023816

Tests Conducted (As Requested By The Applicant)

1 RoHS Directives Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND
Lead (Pb) Content (mg/kg)	32
Mercury (Hg) Content (mg/kg)	ND
Chromium (VI)(Cr ⁶⁺) Result (By Boiling Water Extraction On Metal) (Mg/Kg With 50cm ²)	N
Polybrominated Biphenyls (PBBs)(mg/kg)	
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
Sum Of PBBs	ND
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
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
Sum Of PBDEs	ND

Remark:

mg/kg = Milligram Per Kilogram = ppm

ND = Not Detected



Number : WUXH00023816

Tests Conducted (As Requested By The Applicant)

(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)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	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: 2013, 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: 2013, 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: 2013, 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.	Positive/Negative (Threshold Of 0.02mg/Kg With 50cm ²)
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With Reference To IEC 62321 Edition 1.0: 2008, By Solvent Extraction And Determined By GC/MS And Further HPLC Confirmation When Necessary.	5 mg/kg

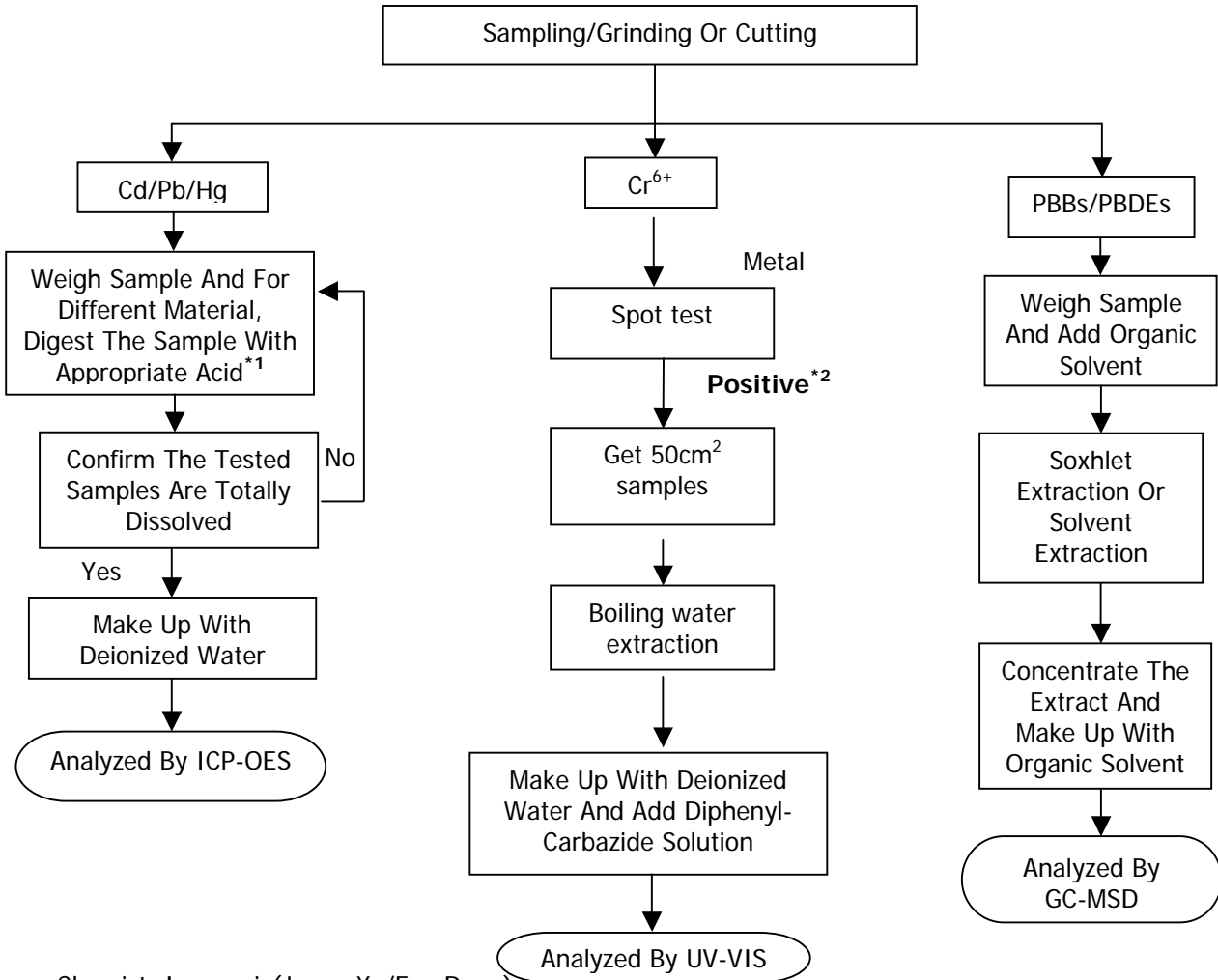
Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

Tests Conducted (As Requested By The Applicant)

(D) Measurement Flowchart:

Reference Standard: IEC 62321 Edition 1.0: 2008 & 2013



Chemist: Inorganic(Jenny Xu/Eve Deng)
Organic (April Zang/Zoe Zhang)

Remarks:

*1: List Of Appropriate Acid:

Material	Acid Added For Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

Tests Conducted (As Requested By The Applicant)

Photo



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



Number : WUXH00023817

Applicant : LITTELFUSE SEMICONDUCTOR (WUXI) CO., LTD
3#, ZHENFA 6 ROAD, SHUO FANG NEW DISTRICT
WUXI, JIANGSU 214142, P.R.CHINA
Attn : ZHANG XIAOPENG

Date : Jul 25, 2014

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **White Powder.**
Item Name : Wafer Passivation (Glass).
Vendor : Propriety.
Component Or Part No. : Propriety.
Test Item : Cd,Pb,Hg,CrVI,PBBs,PBDEs,F,Cl,Br,I.

Tests Conducted:
As Requested By The Applicant, For Details Refer To Attached Pages

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.

Jessica Lu
General Manager





Number : WUXH00023817

Tests Conducted (As Requested By The Applicant)

1 RoHS Directives Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND
Lead (Pb) Content (mg/kg)	345500
Mercury (Hg) Content (mg/kg)	ND
Chromium (VI) (Cr ⁶⁺) Content (mg/kg)(For Non-Metal)	ND
Polybrominated Biphenyls (PBBs)(mg/kg)	
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
Sum Of PBBs	ND
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
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
Sum Of PBDEs	ND

Remark:

mg/kg = Milligram Per Kilogram = ppm

ND = Not Detected



Number : WUXH00023817

Tests Conducted (As Requested By The Applicant)

(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)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	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 62321-5 Edition 1.0: 2013, 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 62321-5 Edition 1.0: 2013, 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 62321-4 Edition 1.0: 2013, By Acid Digestion Until The Tested Sample Was Totally Dissolved, And Determined By ICP-OES.	2 mg/kg
Chromium (VI) (Cr ⁶⁺) Content (For Non-Metal)	With Reference To IEC 62321 Edition 1.0: 2008, By Alkaline Digestion And Determined By UV-VIS Spectrophotometer.	1mg/kg
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With Reference To IEC 62321 Edition 1.0: 2008, By Solvent Extraction And Determined By GC/MS And Further HPLC Confirmation When Necessary.	5 mg/kg

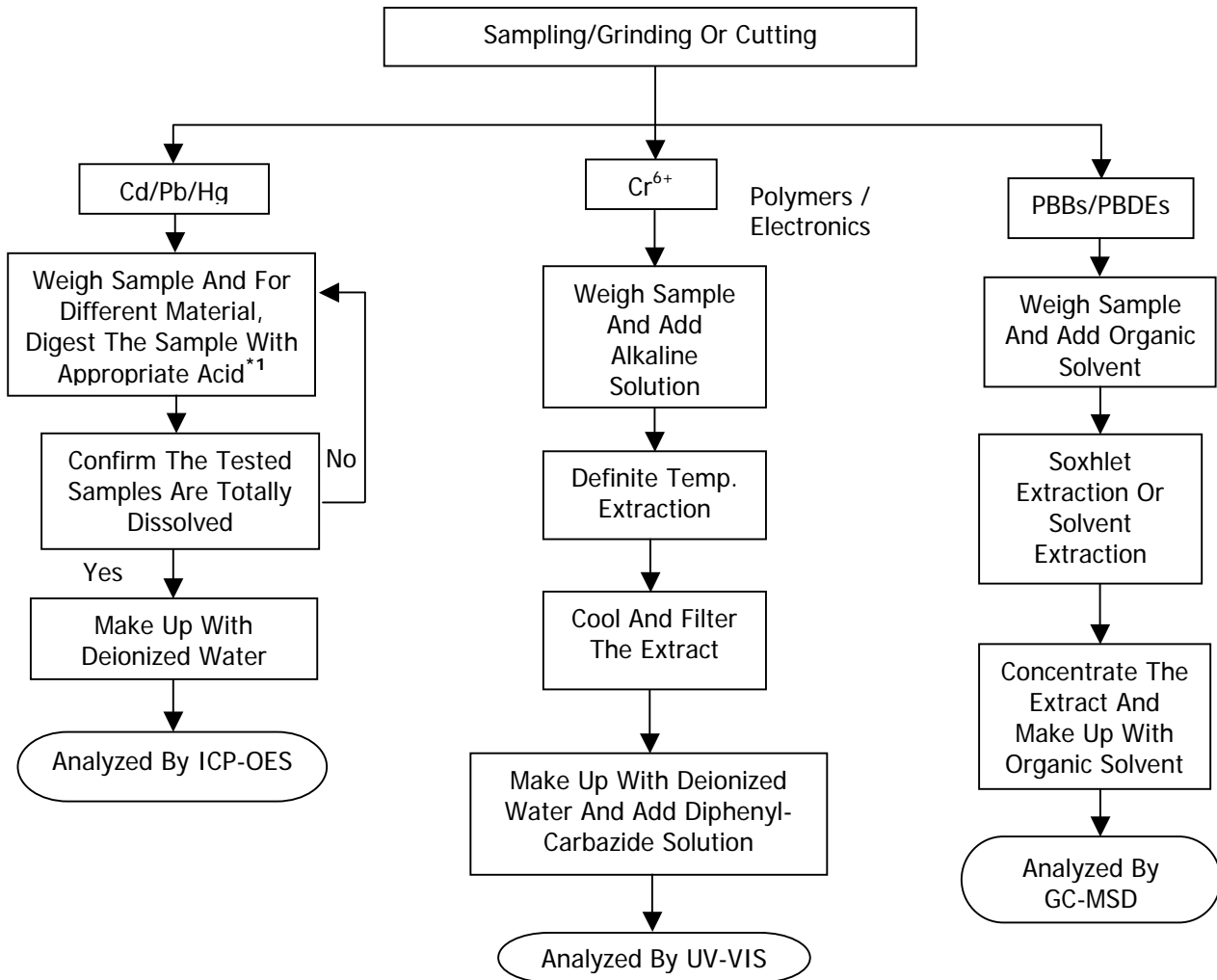
Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

Tests Conducted (As Requested By The Applicant)

(D) Measurement Flowchart:

Reference Standard: IEC 62321 Edition 1.0: 2008 & 2013



Chemist: Inorganic(Jenny Xu/Eve Deng)
Organic (April Zang/Zoe Zhang)

Remarks:

*1: List Of Appropriate Acid:

Material	Acid Added For Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄



Number : WUXH00023817

Tests Conducted (As Requested By The Applicant)

2 Halogen Test

(I) Test Result Summary :

Halogen Content:

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

Remarks : ppm = Parts Per Million = mg/kg

ND = Not Detected

Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

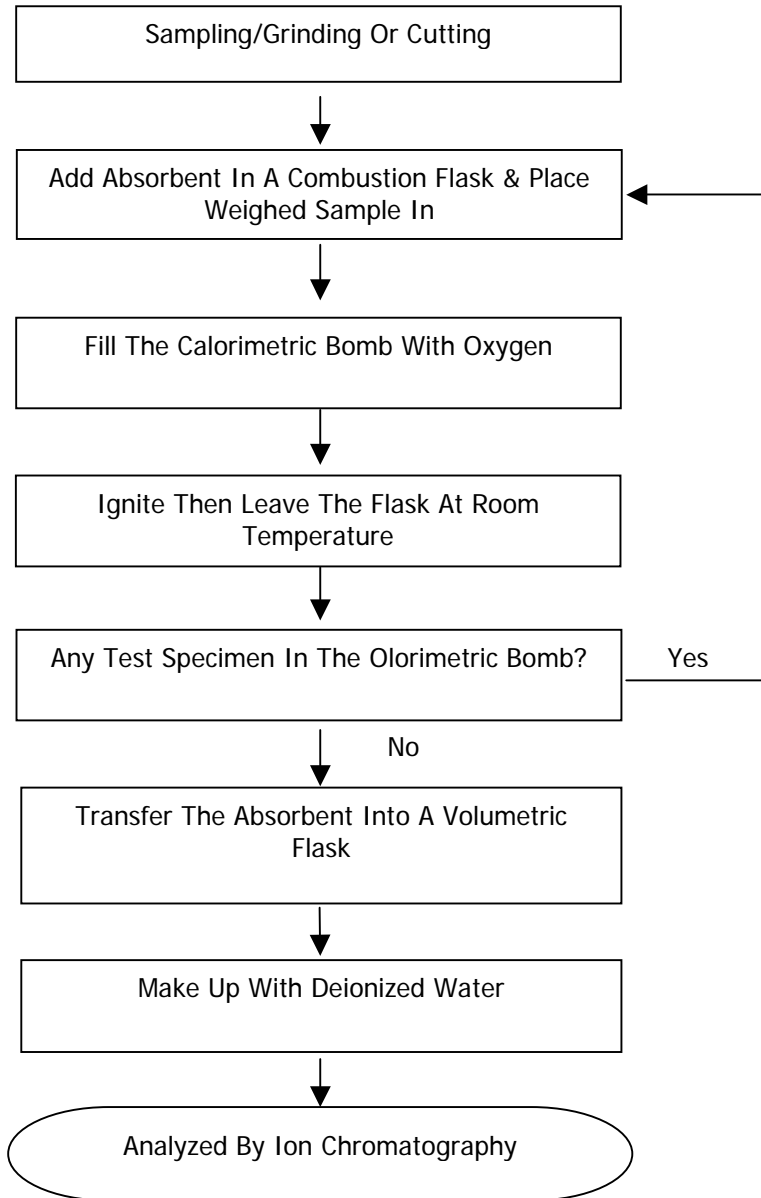
(II) Test Method :

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Halogen (F,Cl, Br,I) Content	With Reference To EN 14582:2007 By Combustion In A Calorimetric Bomb And Determined By Ion Chromatography	50 ppm

Remarks : Reporting Limit = Quantitation Limit Of Analyte In Sample

Tests Conducted (As Requested By The Applicant)

(III) Measurement Flowchart:
Test For Halogen Content Reference Method: EN 14582:2007



Chemist: Eve Deng

Tests Conducted (As Requested By The Applicant)

Photo



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



Number : WUXH00020054

Applicant : LITTELFUSE SEMICONDUCTOR (WUXI) CO., LTD
3#, ZHENFA 6 ROAD, SHUO FANG NEW DISTRICT
WUXI, JIANGSU 214142, P.R.CHINA
Attn : ZHANG XIAOPENG

Date : Feb 25, 2014

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **White Powder.**
Item Name : Wafer Passivation (Glass Powder).
Test Item : Sb.

Tests Conducted:
As Requested By The Applicant, For Details Refer To Attached Pages

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.

Jessica Lu
General Manager





Number : WUXH00020054

Tests Conducted (As Requested By The Applicant)

1 Total Antimony (Sb) Content

As Per Client's Request, Acid Digestion Method Was Used And Total Antimony (Sb) Content Was Determined By Inductively Coupled Argon Plasma Spectrometry.

Result In ppm

<10

ppm = Parts Per Million = mg/kg

< = Less Than

Date Sample Received : Feb 20, 2014

Testing Period : Feb 20, 2014 To Feb 24, 2014

Tests Conducted (As Requested By The Applicant)

Photo



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



Number : WUXH00023819

Applicant : LITTELFUSE SEMICONDUCTOR (WUXI) CO., LTD
3#,ZHENFA 6 ROAD, SHUO FANG NEW DISTRICT
WUXI, JIANGSU 214142, P.R.CHINA
Attn : ZHANG XIAOPENG

Date : Jul 25, 2014

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **Copper Metal.**

Item Name : Lead Wire.
Vendor :
Component Or Part No. : Non Oxygen Copper.
Test Item : Cd,Pb,Hg,CrVI.

Tests Conducted:

As Requested By The Applicant, For Details Refer To Attached Pages

Conclusion:

<u>Tested Sample</u>	<u>Standard</u>	<u>Result</u>
Submitted Sample	Restriction Of The Use Of Certain Hazardous Substance In Electrical And Electronic Equipment (Rohs Directive 2011/65/EU)	Pass

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.

Jessica Lu
General Manager



Tests Conducted (As Requested By The Applicant)

(A) Test result of RoHS Directive:

Testing item	Result
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)	N

Remark: mg/kg with 50cm² = Milligram per kilogram with 50 square centimeter

ND = Not Detected

N = Negative

(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)
Polybrominated biphenyls (PBBs)	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 62321-5 Edition 1.0: 2013, 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 62321-5 Edition 1.0: 2013, 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 62321-4 Edition 1.0: 2013, 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.	Positive/Negative (Threshold of 0.02mg/kg with 50cm ²)

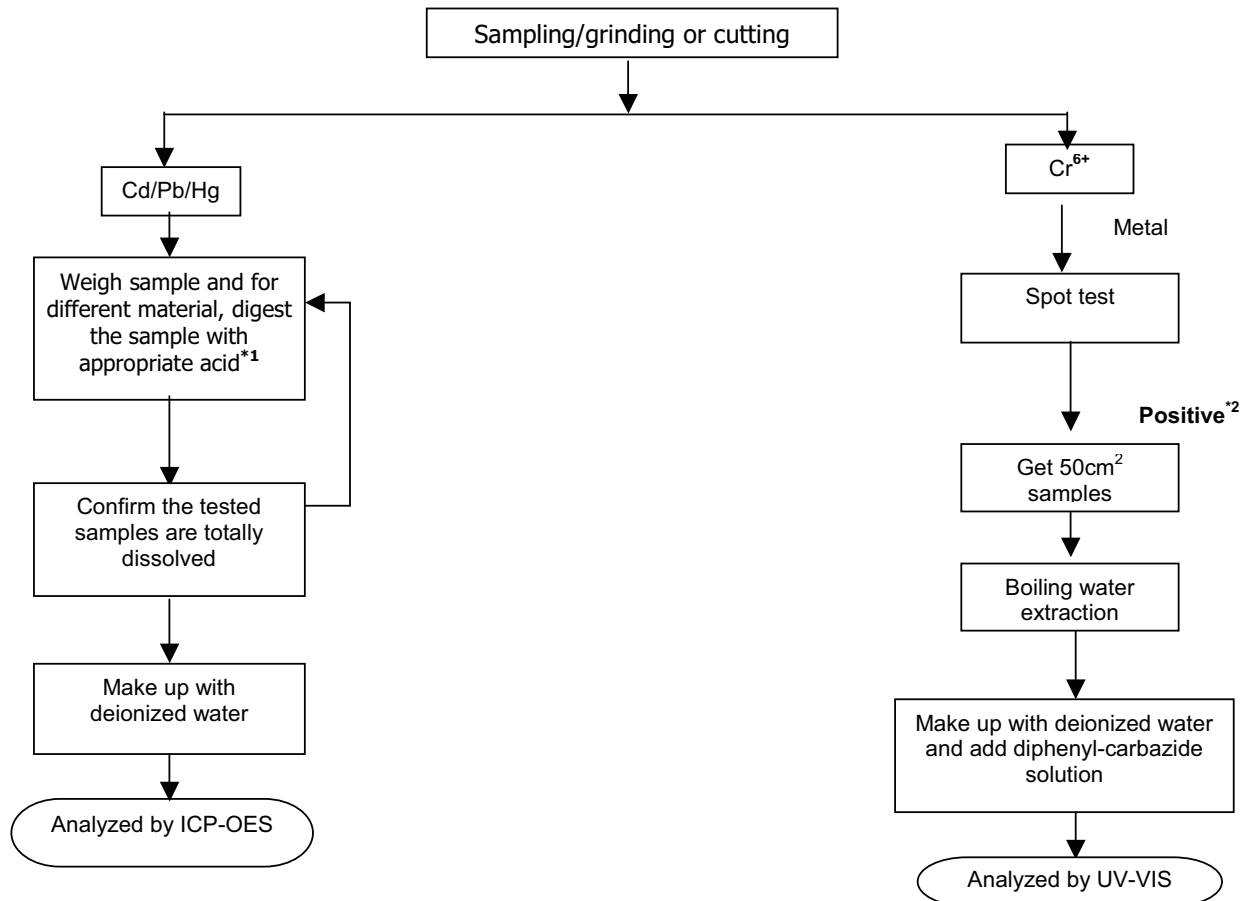
Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

Tests Conducted (As Requested By The Applicant)

(D) Measurement flowchart:

Test for Cd/Pb/Hg/Cr (VI) contents
 Reference standard: IEC 62321 Edition 1.0: 2008&2013



Remarks:

*1: List Of Appropriate Acid:

Material	Acid added for digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

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

Tests Conducted (As Requested By The Applicant)

Photo



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



Number : WUXH00023832

Applicant : LITTELFUSE SEMICONDUCTOR (WUXI) CO., LTD
3#, ZHENFA 6 ROAD, SHUO FANG NEW DISTRICT
WUXI, JIANGSU 214142, P.R.CHINA
Attn : ZHANG XIAOPENG

Date : Jul 25, 2014

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **Silvery Solder Wafer.**
Item Name : Solder Wafer.
Vendor : Coining Inc.
Component Or Part No. : Pb:Sn:Ag=92.5:5:2.5.
Test Item : Cd,Pb,Hg,CrVI,PBBs,PBDEs,F,Cl,Br,I.

Tests Conducted:
As Requested By The Applicant, For Details Refer To Attached Pages

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.

Jessica Lu
General Manager





Number : WUXH00023832

Tests Conducted (As Requested By The Applicant)

1 RoHS Directives Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND
Lead (Pb) Content (mg/kg)	917800
Mercury (Hg) Content (mg/kg)	ND
Chromium (VI)(Cr ⁶⁺) Result (By Boiling Water Extraction On Metal) (Mg/Kg With 50cm ²)	N
Polybrominated Biphenyls (PBBs)(mg/kg)	
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
Sum Of PBBs	ND
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
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
Sum Of PBDEs	ND

Remark:

mg/kg = Milligram Per Kilogram = ppm

ND = Not Detected



Number : WUXH00023832

Tests Conducted (As Requested By The Applicant)

(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)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	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: 2013, 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: 2013, 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: 2013, 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.	Positive/Negative (Threshold Of 0.02mg/Kg With 50cm ²)
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With Reference To IEC 62321 Edition 1.0: 2008, By Solvent Extraction And Determined By GC/MS And Further HPLC Confirmation When Necessary.	5 mg/kg

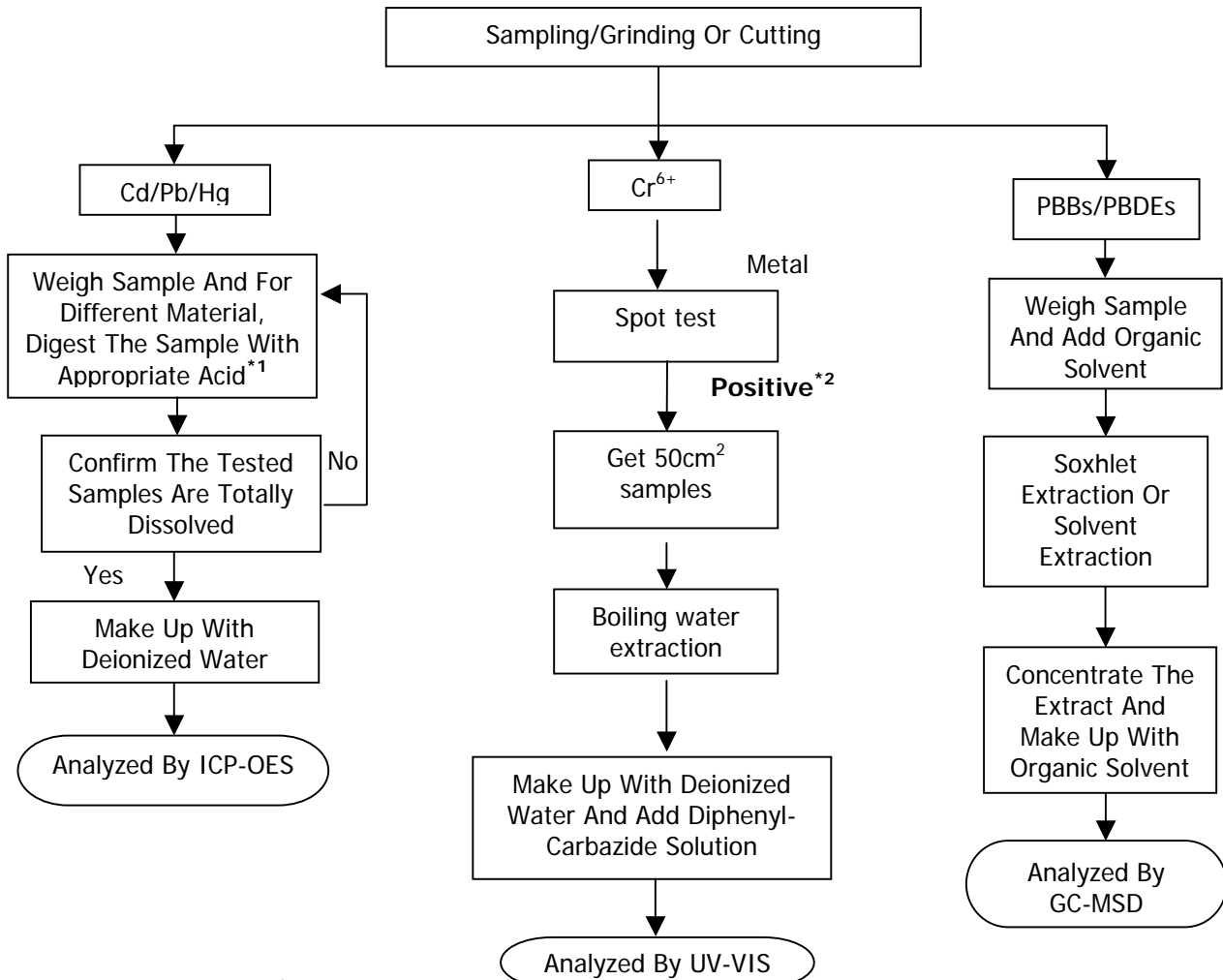
Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

Tests Conducted (As Requested By The Applicant)

(D) Measurement Flowchart:

Reference Standard: IEC 62321 Edition 1.0: 2008 & 2013



Chemist: Inorganic(Jenny Xu/Eve Deng)
Organic (April Zang/Zoe Zhang)

Remarks:

*1: List Of Appropriate Acid:

Material	Acid Added For Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄



Number : WUXH00023832

Tests Conducted (As Requested By The Applicant)

2 Halogen Test

(I) Test Result Summary :

Halogen Content:

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

Remarks : ppm = Parts Per Million = mg/kg

ND = Not Detected

Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

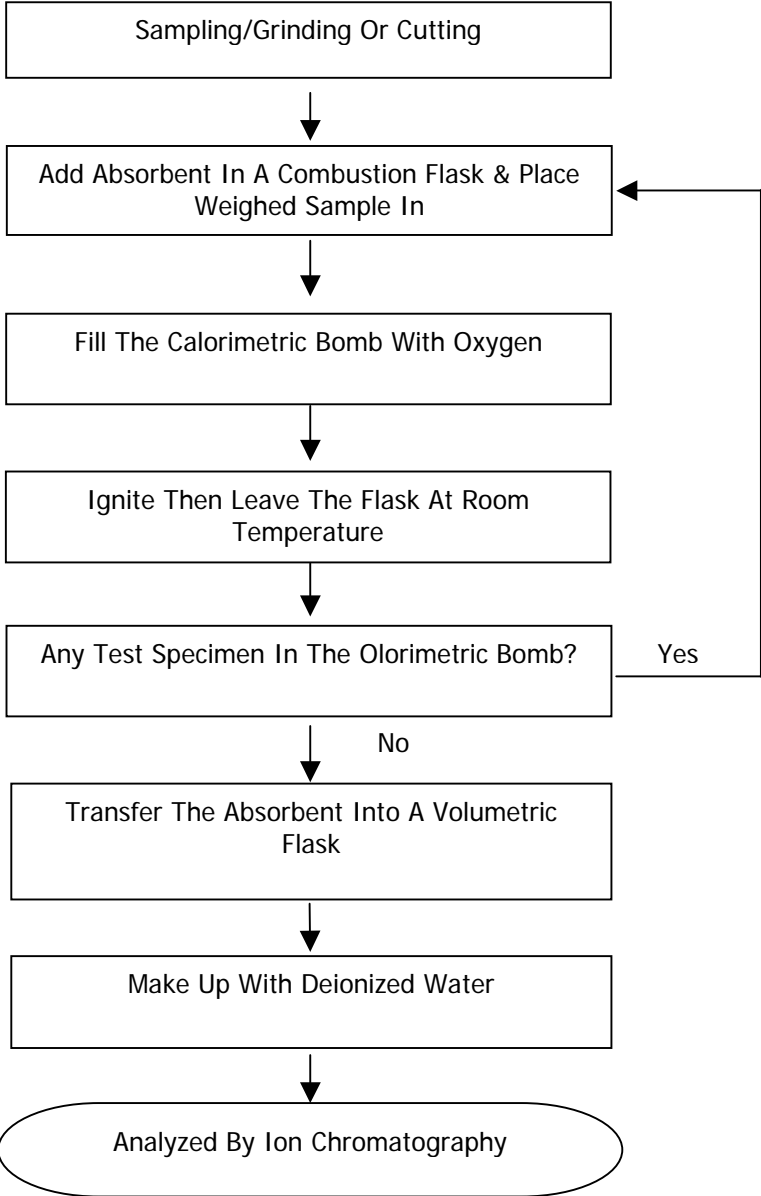
(II) Test Method :

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Halogen (F,Cl, Br,I) Content	With Reference To EN 14582:2007 By Combustion In A Calorimetric Bomb And Determined By Ion Chromatography	50 ppm

Remarks : Reporting Limit = Quantitation Limit Of Analyte In Sample

Tests Conducted (As Requested By The Applicant)

(III) Measurement Flowchart:
Test For Halogen Content Reference Method: EN 14582:2007



Chemist: Eve Deng

Tests Conducted (As Requested By The Applicant)

Photo



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



Number : WUXH00023828

Applicant : LITTELFUSE SEMICONDUCTOR (WUXI) CO., LTD
3#, ZHENFA 6 ROAD, SHUO FANG NEW DISTRICT
WUXI, JIANGSU 214142, P.R.CHINA
Attn : ZHANG XIAOPENG

Date : Jul 28, 2014

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **Silvery Metal.**

Item Name : Copper Spacer.

Vendor :

Component Or Part No. : Copper With Ag Plating.

Test Item : Cd,Pb,Hg,CrVI.

Remark : As Requested By The Applicant, Tested As A Whole And Sampled Randomly.

Tests Conducted:

As Requested By The Applicant, For Details Refer To Attached Pages

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.

Jessica Lu
General Manager



Tests Conducted (As Requested By The Applicant)

(A) Test result of RoHs Directive:

Testing item	Result
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)	N

Remark: mg/kg with 50cm² = Milligram per kilogram with 50 square centimeter

ND = Not Detected

N = Negative

(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)
Polybrominated biphenyls (PBBs)	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 62321-5 Edition 1.0: 2013, 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 62321-5 Edition 1.0: 2013, 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 62321-4 Edition 1.0: 2013, 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.	Positive/Negative (Threshold of 0.02mg/kg with 50cm ²)

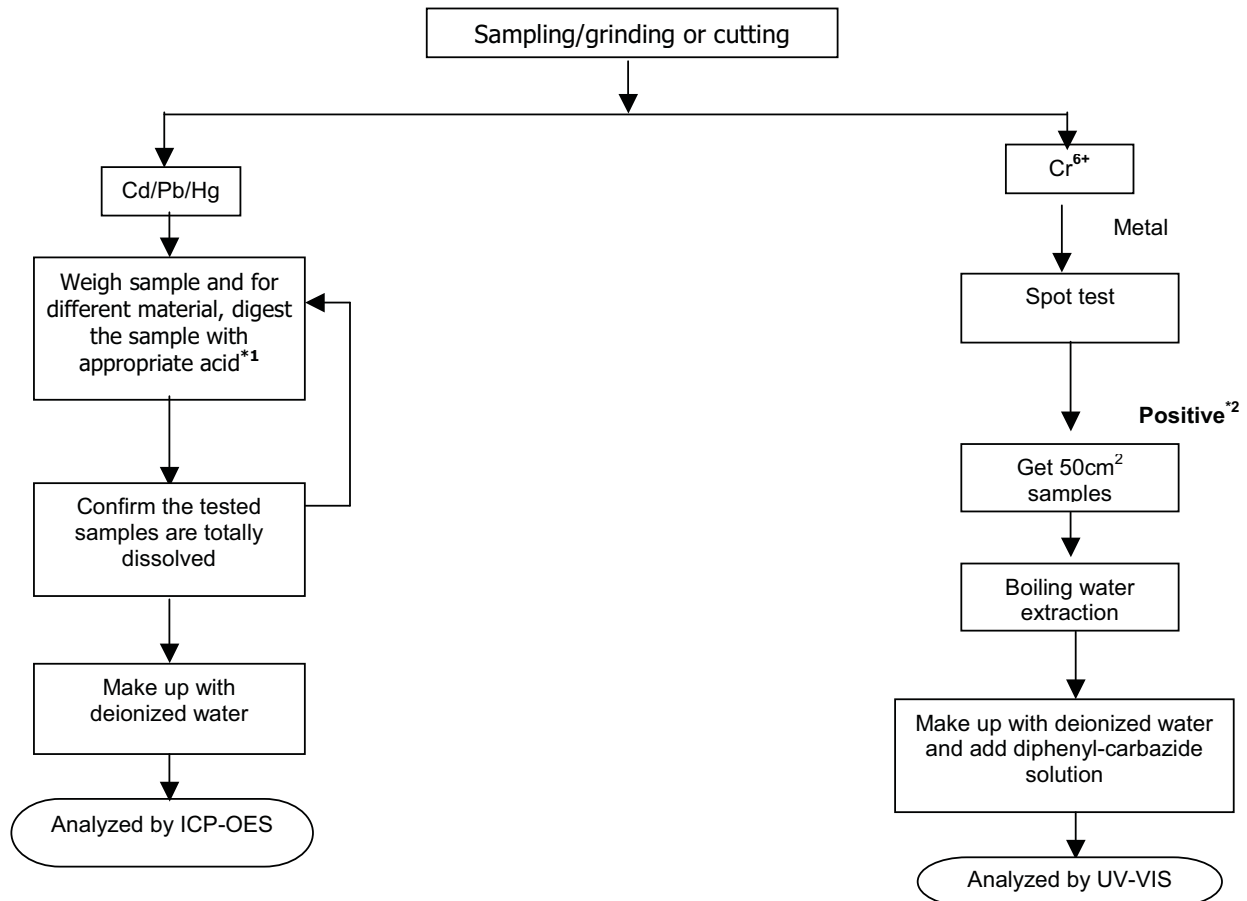
Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

Tests Conducted (As Requested By The Applicant)

(D) Measurement flowchart:

Test for Cd/Pb/Hg/Cr (VI) contents
 Reference standard: IEC 62321 Edition 1.0: 2008&2013



Remarks:

*1: List Of Appropriate Acid:

Material	Acid added for digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

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

Tests Conducted (As Requested By The Applicant)

Photo



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



Number : WUXH00023847

Applicant : LITTELFUSE SEMICONDUCTOR (WUXI) CO., LTD
3#,ZHENFA 6 ROAD, SHUO FANG NEW DISTRICT
WUXI, JIANGSU 214142, P.R.CHINA
Attn : ZHANG XIAOPENG

Date : Jul 28, 2014

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **Grey Epoxy Molding Compound.**

Item Name : Epoxy Molding Compound.

Vendor :

Component Or Part No. : EME-E110G.

Test Item : Cd,Pb,Hg,CrVI,PBBs,PBDEs,F,Cl,Br,I,Phthalate,HBCDD,Sb.

Tests Conducted:

As Requested By The Applicant, For Details Refer To Attached Pages

Conclusion:

<u>Tested Sample</u>	<u>Standard</u>	<u>Result</u>
Submitted sample	Restriction Of The Use Of Certain Hazardous Substance In Electrical And Electronic Equipment (Rohs Directive 2011/65/EU)	Pass

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.

Jessica Lu
General Manager



Tests Conducted (As Requested By The Applicant)

1 RoHS Directives Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND
Lead (Pb) Content (mg/kg)	ND
Mercury (Hg) Content (mg/kg)	ND
Chromium (VI) (Cr ⁶⁺) Content (mg/kg)(For Non-Metal)	ND
Polybrominated Biphenyls (PBBs)(mg/kg)	
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
Sum Of PBBs	ND
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
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
Sum Of PBDEs	ND

Remark:

mg/kg = Milligram Per Kilogram = ppm

ND = Not Detected



Number : WUXH00023847

Tests Conducted (As Requested By The Applicant)

(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)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	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 62321-5 Edition 1.0: 2013, 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 62321-5 Edition 1.0: 2013, 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 62321-4 Edition 1.0: 2013, By Acid Digestion Until The Tested Sample Was Totally Dissolved, And Determined By ICP-OES.	2 mg/kg
Chromium (VI) (Cr ⁶⁺) Content (For Non-Metal)	With Reference To IEC 62321 Edition 1.0: 2008, By Alkaline Digestion And Determined By UV-VIS Spectrophotometer.	1mg/kg
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With Reference To IEC 62321 Edition 1.0: 2008, By Solvent Extraction And Determined By GC/MS And Further HPLC Confirmation When Necessary.	5 mg/kg

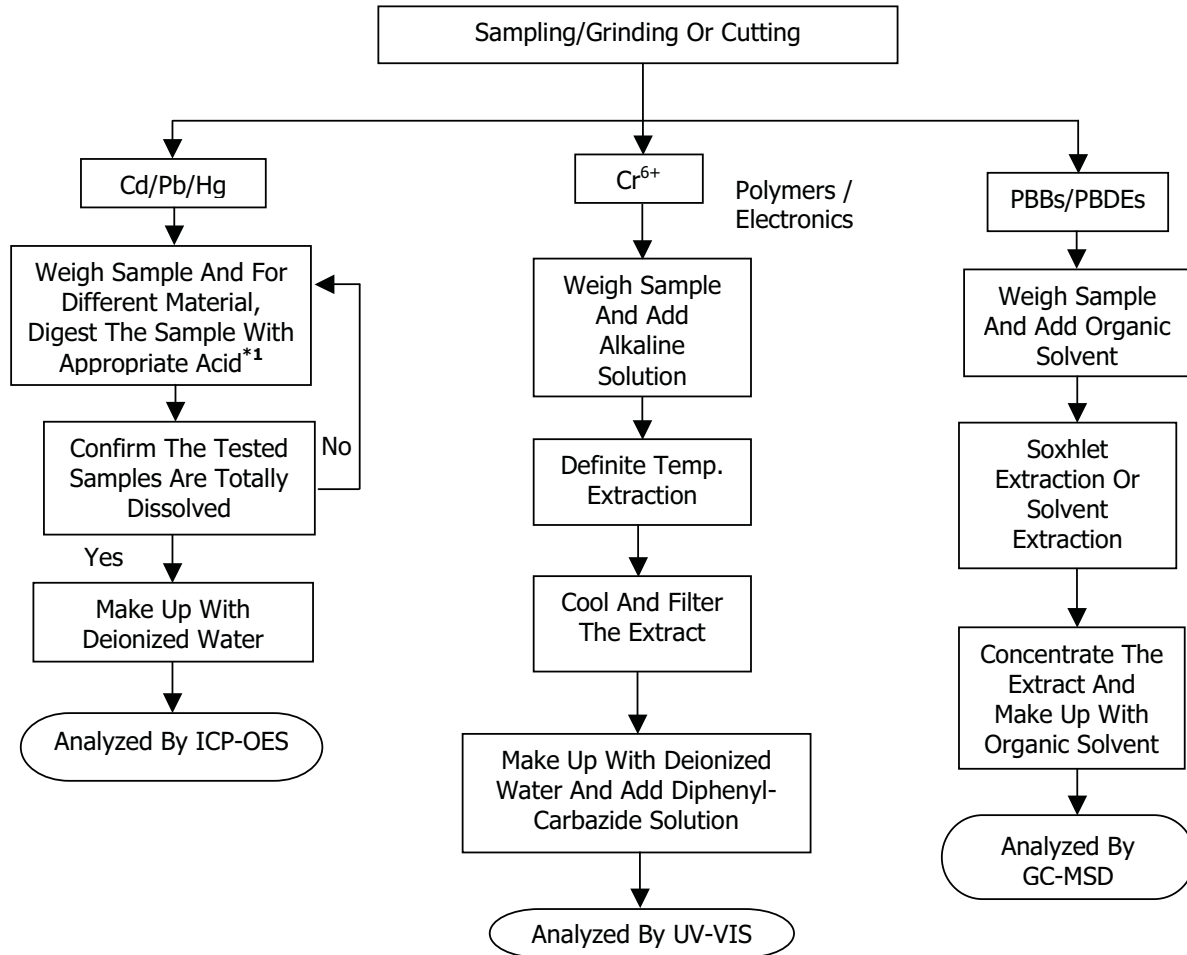
Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

Tests Conducted (As Requested By The Applicant)

(D) Measurement Flowchart:

Reference Standard: IEC 62321 Edition 1.0: 2008 & 2013



Chemist: Inorganic(Jenny Xu/Eve Deng)
Organic (April Zang/Zoe Zhang)

Remarks:

*1: List Of Appropriate Acid:

Material	Acid Added For Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

Tests Conducted (As Requested By The Applicant)

2 Halogen Test

(I) Test Result Summary :

Halogen Content:

<u>Testing Item</u>	<u>Result (ppm)</u>
Fluorine (F) Content	ND
Chlorine (Cl)Content	102
Bromine (Br) Content	ND
Iodine (I) Content	ND

Remarks : ppm = Parts Per Million = mg/kg

ND = Not Detected

Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

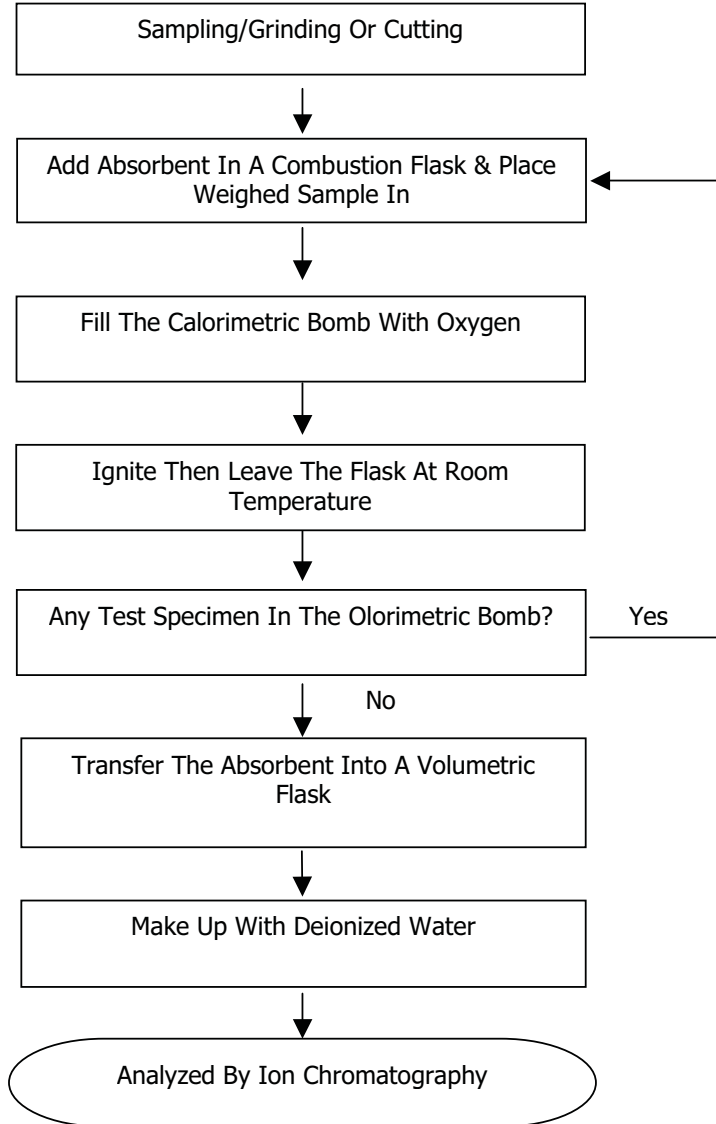
(II) Test Method :

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Halogen (F,Cl, Br,I) Content	With Reference To EN 14582:2007 By Combustion In A Calorimetric Bomb And Determined By Ion Chromatography	50 ppm

Remarks : Reporting Limit = Quantitation Limit Of Analyte In Sample

Tests Conducted (As Requested By The Applicant)

(III) Measurement Flowchart:
Test For Halogen Content Reference Method: EN 14582:2007



Chemist: Eve Deng

Tests Conducted (As Requested By The Applicant)

3 HBCDD (Hexabromocyclododecane)

(A) Test Result Summary:

<u>Testing Item</u>	<u>Result(ppm)</u>
HBCDD (Hexabromocyclododecane)	ND

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

(B) Test Method :

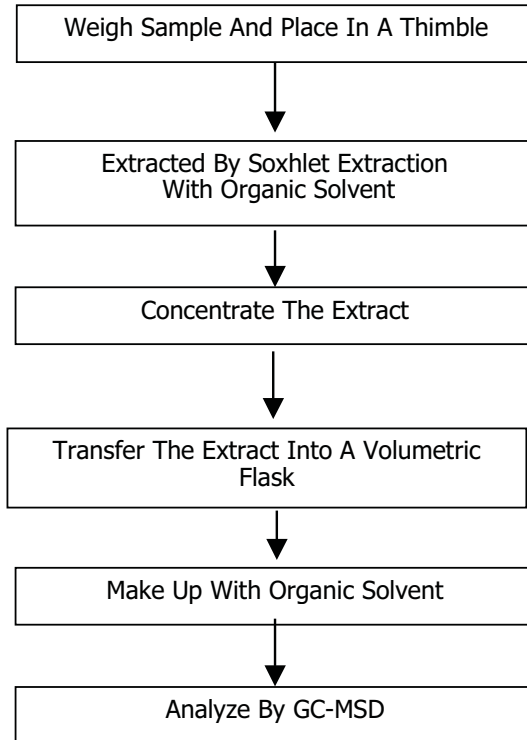
<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
HBCDD (Hexabromocyclododecane)	With Reference To US EPA 3540C, By Solvent Extraction And Determined By GC-MSD	10 ppm

Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

Measurement Flowchart:

Test For HBCDD (Hexabromocyclododecane) Content



Chemist: Cherry Sun/Zoe Zhang

Tests Conducted (As Requested By The Applicant)

4 Phthalate Content Test

With Reference To EN14372, By Gas Chromatographic-Mass Spectrometric (GC-MSD) Analysis.

<u>Tested Compound</u>	<u>Result (%W/W)</u>
------------------------	----------------------

Dibutyl Phthalate (DBP)	ND
Diethyl Hexyl Phthalate(DEHP)	ND
Benzyl Butyl Phthalate (BBP)	ND
Di-isobutyl phthalate(DIBP)	ND
Di-Iso-Nonyl Phthalate (DINP)	ND
Di-N-Octyl Phthalate (DNOP)	ND
Di-Iso-Decyl Phthalate (DIDP)	ND

Remark: Detection Limit = 0.01%(W/W)

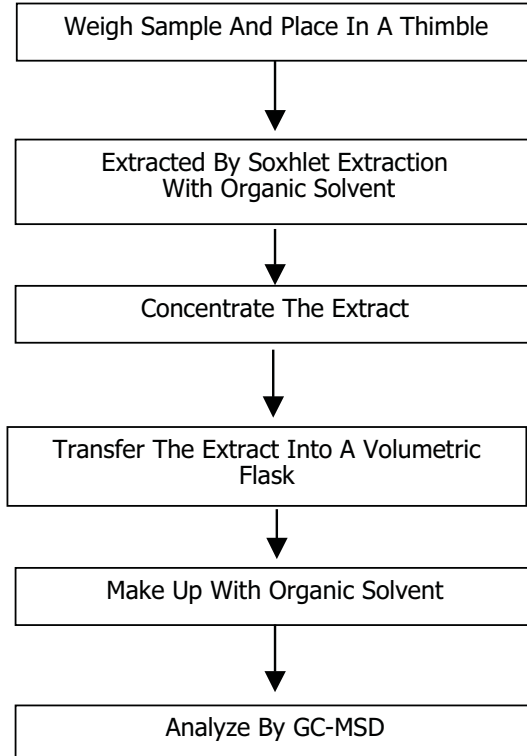
ND = Not Detected

Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

Measurement Flowchart:

Test For Phthalates Contents



Chemist: Anke Zheng/Zoe Zhang

Tests Conducted (As Requested By The Applicant)
5 Total (Sb) Content

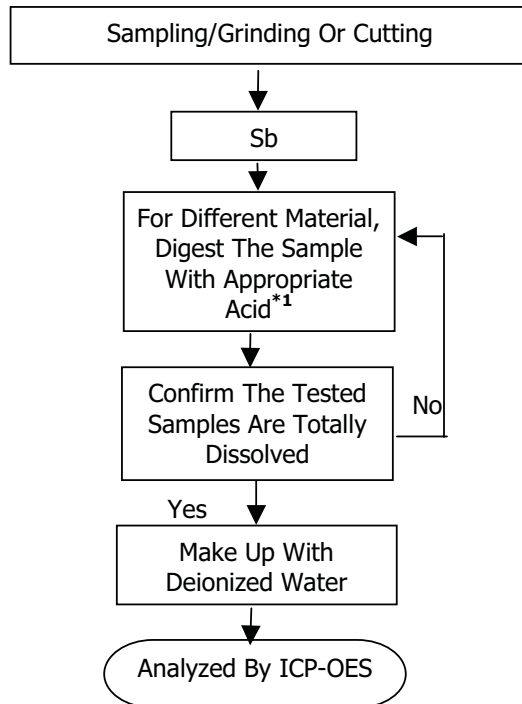
As Per Client'S Request, Acid Digestion Method Was Used And Total (Sb) Content Was Determined By Inductively Coupled Argon Plasma Spectrometry.

Result In ppm

<10

ppm = Parts Per Million = mg/kg
< = Less Than

Measurement Flowchart:



Tests Conducted (As Requested By The Applicant)

Photo



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



Number : WUXH00023859

Applicant : LITTELFUSE SEMICONDUCTOR (WUXI) CO., LTD
3#,ZHENFA 6 ROAD, SHUO FANG NEW DISTRICT
WUXI, JIANGSU 214142, P.R.CHINA
Attn : ZHANG XIAOPENG

Date : Jul 25, 2014

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **Black Plastic With Silvery Metal Pin.**

Item Name : Tin Plating(Axial).
Vendor :
Component Or Part No. : Pure Matte Tin.
Test Item : Cd,Pb,Hg,CrVI.

Tests Conducted:

As Requested By The Applicant, For Details Refer To Attached Pages

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.

Jessica Lu
General Manager



Tests Conducted (As Requested By The Applicant)

(A) Test result of RoHs Directive:

Testing item	Result#
Cadmium (Cd) content (mg/kg)/Plating	ND
Lead (Pb) content (mg/kg)/Plating	78
Mercury (Hg) content (mg/kg)/Plating	ND
Chromium (VI)(Cr ⁶⁺) result (by boiling water extraction on metal) (mg/kg with 50cm ²)	N

Remark: mg/kg with 50cm² = Milligram per kilogram with 50 square centimeter

ND = Not Detected

N = Negative

#=Only For Reference

Tested Component: Metal Pin Plating.

(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)
Polybrominated biphenyls (PBBs)	0.1% (1000 mg/kg)

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

(C) Test Method:

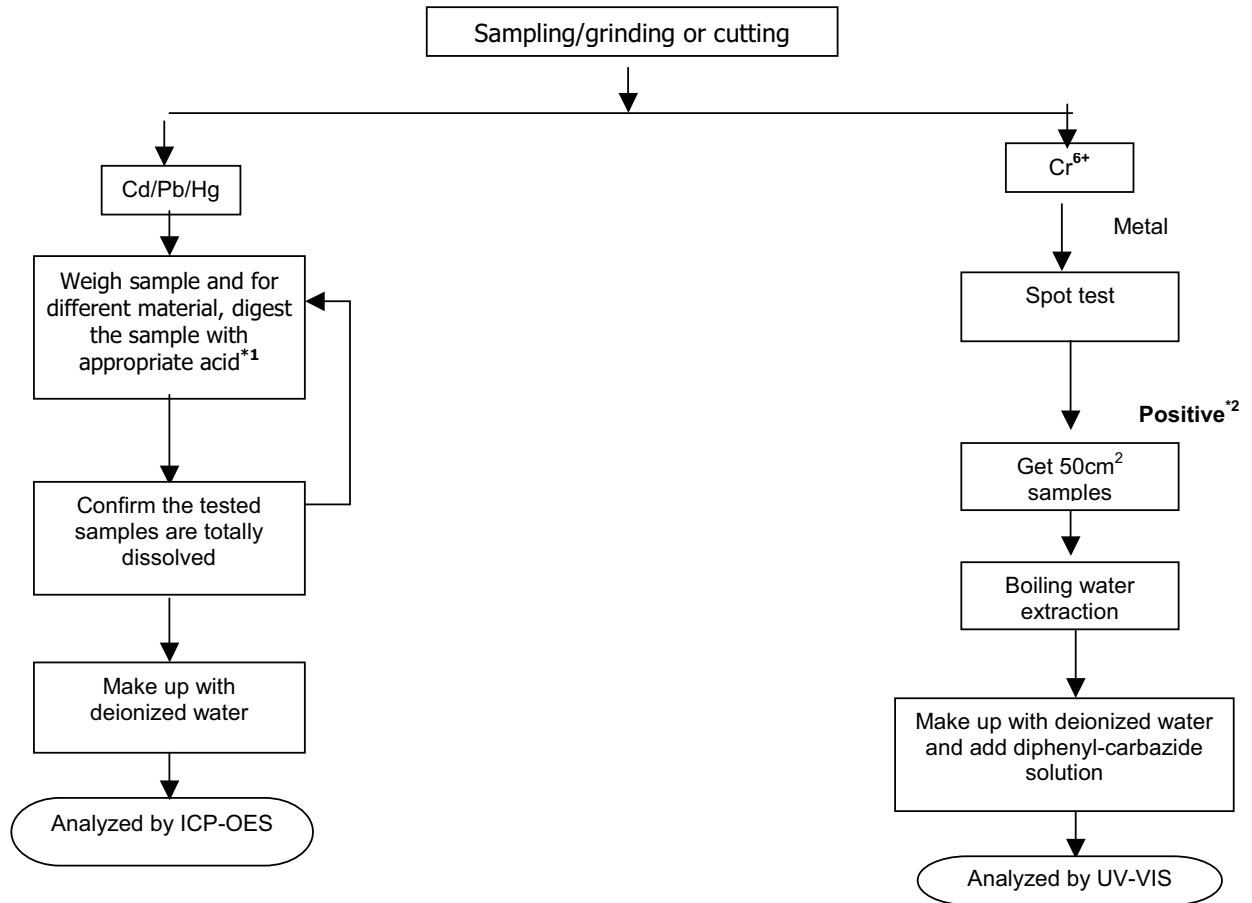
Testing Item	Testing Method	Reporting Limit
Cadmium (Cd) content	With reference to : IEC 62321-5 Edition 1.0: 2013, by acid digestion until the tested sample was totally dissolved, and determined by ICP-OES.	2 mg/kg
Lead (Pb) content	With reference to: IEC 62321-5 Edition 1.0: 2013, by acid digestion until the tested sample was totally dissolved, and determined by ICP-OES.	2 mg/kg
Mercury (Hg) content	With reference to: IEC 62321-4 Edition 1.0: 2013, 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.	Positive/Negative (Threshold of 0.02mg/kg with 50cm ²)

Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

(D) Measurement flowchart:

Tests Conducted (As Requested By The Applicant)
 Test for Cd/Pb/Hg/Cr (VI) contents
 Reference standard: IEC 62321 Edition 1.0: 2008&2013



Remarks:

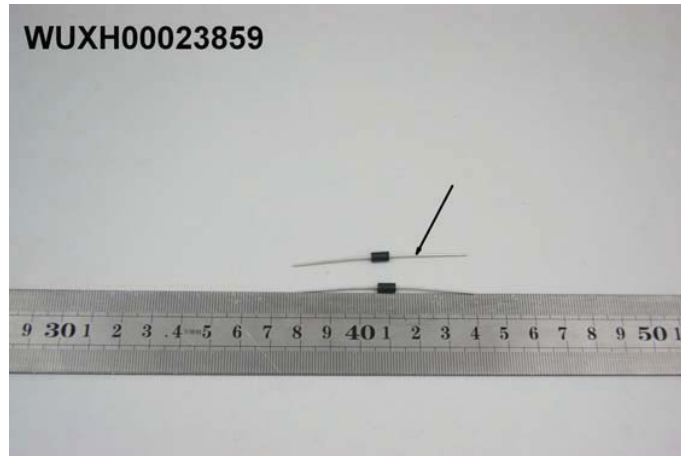
*1: List Of Appropriate Acid:

Material	Acid added for digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

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

Tests Conducted (As Requested By The Applicant)

Photo



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



Number : WUXH00023855

Applicant : LITTELFUSE SEMICONDUCTOR (WUXI) CO., LTD
3#,ZHENFA 6 ROAD, SHUO FANG NEW DISTRICT
WUXI, JIANGSU 214142, P.R.CHINA
Attn : ZHANG XIAOPENG

Date : Jul 25, 2014

Sample Description As Declared:

One (1) Piece Of Submitted Sample Said To Be : **Silvery Grey Ink.**

Item Name : UV Ink-Silver.

Vendor :

Component Or Part No. : NA.

Test Item : Cd,Pb,Hg,CrVI,PBBs,PBDEs,F,Cl,Br,I,Phthalate,HBCDD.

Tests Conducted:

As Requested By The Applicant, For Details Refer To Attached Pages

Conclusion:

<u>Tested Sample</u>	<u>Standard</u>	<u>Result</u>
Submitted sample	Restriction Of The Use Of Certain Hazardous Substance In Electrical And Electronic Equipment (Rohs Directive 2011/65/EU)	Pass

Prepared And Checked By:
For Intertek Testing Services Wuxi Ltd.

Jessica Lu
General Manager



Tests Conducted (As Requested By The Applicant)

1 RoHS Directives Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND
Lead (Pb) Content (mg/kg)	23
Mercury (Hg) Content (mg/kg)	ND
Chromium (VI) (Cr ⁶⁺) Content (mg/kg)(For Non-Metal)	ND
Polybrominated Biphenyls (PBBs)(mg/kg)	
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
Sum Of PBBs	ND
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
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
Sum Of PBDEs	ND

Remark:

mg/kg = Milligram Per Kilogram = ppm

ND = Not Detected

Tests Conducted (As Requested By The Applicant)

(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)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	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 62321-5 Edition 1.0: 2013, 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 62321-5 Edition 1.0: 2013, 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 62321-4 Edition 1.0: 2013, By Acid Digestion Until The Tested Sample Was Totally Dissolved, And Determined By ICP-OES.	2 mg/kg
Chromium (VI) (Cr ⁶⁺) Content (For Non-Metal)	With Reference To IEC 62321 Edition 1.0: 2008, By Alkaline Digestion And Determined By UV-VIS Spectrophotometer.	1mg/kg
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With Reference To IEC 62321 Edition 1.0: 2008, By Solvent Extraction And Determined By GC/MS And Further HPLC Confirmation When Necessary.	5 mg/kg

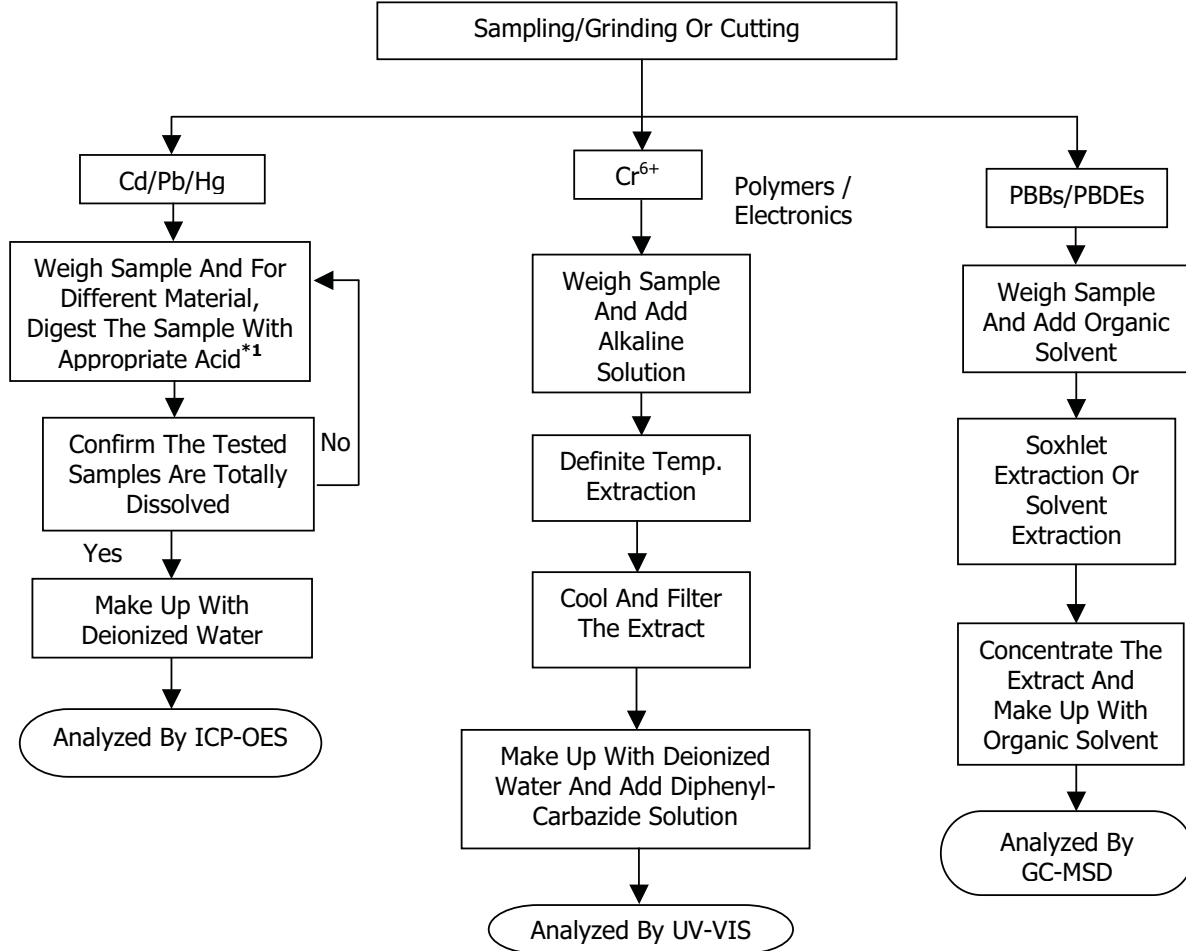
Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

Tests Conducted (As Requested By The Applicant)

(D) Measurement Flowchart:

Reference Standard: IEC 62321 Edition 1.0: 2008 & 2013



Chemist: Inorganic(Jenny Xu/Eve Deng)
Organic (April Zang/Zoe Zhang)

Remarks:

*1: List Of Appropriate Acid:

Material	Acid Added For Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄



Number : WUXH00023855

Tests Conducted (As Requested By The Applicant)

2 Halogen Test

(I) Test Result Summary :

Halogen Content:

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

Remarks : ppm = Parts Per Million = mg/kg

ND = Not Detected

Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

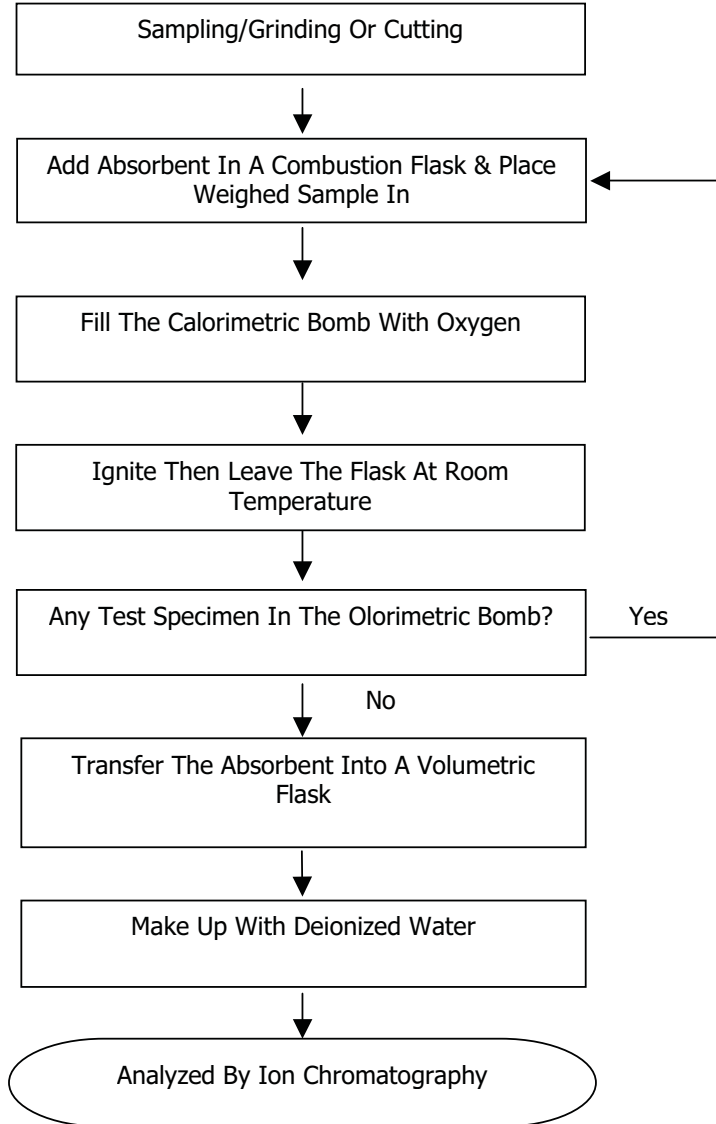
(II) Test Method :

<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
Halogen (F,Cl, Br,I) Content	With Reference To EN 14582:2007 By Combustion In A Calorimetric Bomb And Determined By Ion Chromatography	50 ppm

Remarks : Reporting Limit = Quantitation Limit Of Analyte In Sample

Tests Conducted (As Requested By The Applicant)

(III) Measurement Flowchart:
Test For Halogen Content Reference Method: EN 14582:2007



Chemist: Eve Deng

Tests Conducted (As Requested By The Applicant)

3 HBCDD (Hexabromocyclododecane)

(A) Test Result Summary:

<u>Testing Item</u>	<u>Result(ppm)</u>
HBCDD (Hexabromocyclododecane)	ND

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

(B) Test Method :

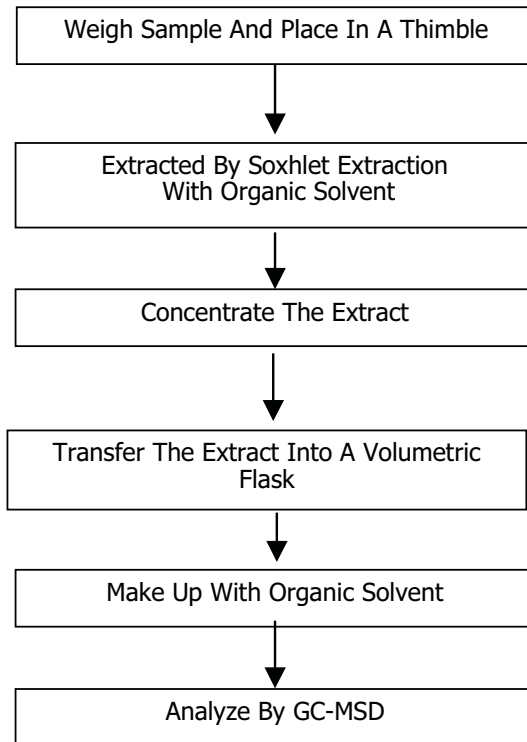
<u>Testing Item</u>	<u>Testing Method</u>	<u>Reporting Limit</u>
HBCDD (Hexabromocyclododecane)	With Reference To US EPA 3540C, By Solvent Extraction And Determined By GC-MSD	10 ppm

Date Sample Receive: Jul 18, 2014

Test Period: Jul 18, 2014 To Jul 24, 2014

Measurement Flowchart:

Test For HBCDD (Hexabromocyclododecane) Content



Chemist: Cherry Sun/Zoe Zhang

Tests Conducted (As Requested By The Applicant)

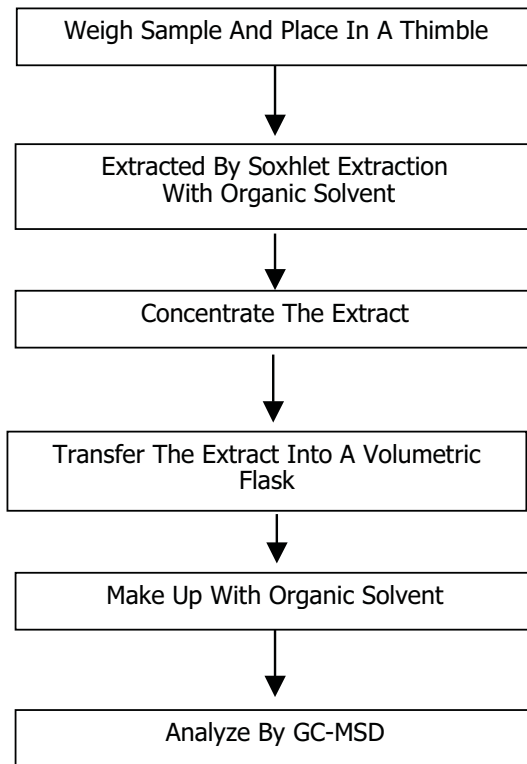
4 Phthalate Content Test

With Reference To EN14372, By Gas Chromatographic-Mass Spectrometric (GC-MSD) Analysis.

<u>Tested Compound</u>	<u>Result (%W/W)</u>
Dibutyl Phthalate (DBP)	ND
Diethyl Hexyl Phthalate(DEHP)	ND
Benzyl Butyl Phthalate (BBP)	ND
Di-isobutyl phthalate(DIBP)	ND
Di-Iso-Nonyl Phthalate (DINP)	ND
Di-N-Octyl Phthalate (DNOP)	ND
Di-Iso-Decyl Phthalate (DIDP)	ND

Remark: Detection Limit = 0.01%(W/W)

ND = Not Detected

Measurement Flowchart:
Test For Phthalates Contents

Chemist: Anke Zheng/Zoe Zhang

Tests Conducted (As Requested By The Applicant)

Photo



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