

ICP Test Report Certification Packet

Company Name: Littelfuse, Inc. Metal Oxide Varistors Product Type: Product Series: LA Series RoHS Compliant models Issue Date: September 6, 2012 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. David Huang Issued by: < DGLF Environmental, Health & Safety Engineer > (1) Parts, sub-materials and unit parts This document covers the Surface Mount Varistors MHS/MLE/MLAxxxxNR compliant series products manufactured by Littelfuse, Inc. Please see Table 1 for raw materials used. (2) The ICP data on all measurable substances Please see appropriate pages as identified in Table 1 Remarks:



Table 1: List of Raw Materials covered by this report

Parts	P/N	Raw Material Description	Page
1	N/A	Black disc, type including DD,DM,DP,DV,DH,HD,HH and HM	3-42
2	N/A	Silver Paste	43-54
3	N/A	Pb-free Solder Bar	55-63
4	N/A	Tinned Copper Wire	64-76
5	N/A	Epoxy, Red HF	77-82



Date:

Jun 19, 2012

Result

Pass

Applicant: LITTELFUSE, INC

8755 WEST HIGGINS ROAD SUITE

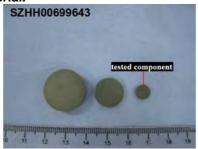
500CHICAGO IL 60631 USA

KRISTEEN BACILA/ARSENIO CESISTA JR. Attn:

Sample Description:

One (1) submitted sample said to be DD black disc.

Tested component: black solid material.



Tests conducted:

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

Conclusion:

Tested Samples Tested component of submitted sample

Standard

Restriction of the use of certain hazardous substance in

electrical electronic and equipment (RoHS Direction

2002/95/EC and supersedure 2011/65/EU)

Authorized by:

For Intertek Testing Services

Shenzhen Ltd.

Ben N.L. Lin General Manager



Tests Conducted

RoHS Chemical Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND(<2)
Lead (Pb) Content (mg/kg)	ND(<2)
Mercury (Hg) Content (mg/kg)	ND(<2)
Chromium (VI)(Cr ⁶⁺) Content (mg/kg)	10
Polybrominated Biphenyls (PBBs)(mg/kg)	
Monobromobiphenyl (MonoBB)	ND(<5)
Dibromobiphenyl (DiBB)	ND(<5)
Tribromobiphenyl (TriBB)	ND(<5)
Tetrabromobiphenyl (TetraBB)	ND(<5)
Pentabromobiphenyl (PentaBB)	ND(<5)
Hexabromobiphenyl (HexaBB)	ND(<5)
Heptabromobiphenyl (HeptaBB)	ND(<5)
Octabromobiphenyl (OctaBB)	ND(<5)
Nonabromobiphenyl (NonaBB)	ND(<5)
Decabromobiphenyl (DecaBB)	ND(<5)
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
Monobromodiphenyl Ether (MonoBDE)	ND(<5)
Dibromodiphenyl Ether (DiBDE)	ND(<5)
Tribromodiphenyl Ether (TriBDE)	ND(<5)
Tetrabromodiphenyl Ether (TetraBDE)	ND(<5)
Pentabromodiphenyl Ether (PentaBDE)	ND(<5)
Hexabromodiphenyl Ether (HexaBDE)	ND(<5)
Heptabromodiphenyl Ether (HeptaBDE)	ND(<5)
Octabromodiphenyl Ether (OctaBDE)	ND(<5)
Nonabromodiphenyl Ether (NonaBDE)	ND(<5)
Decabromodiphenyl Ether (DecaBDE)	ND(<5)

Chemist: Wang Haijun/Zeng Guoliang

mg/kg = milligram per kilogram = ppm < = Less than

ND = Not detected



Tests Conducted

(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 2002/95/EC and supersedure 2011/65/EU for homogeneous material.

(C) Test Method:

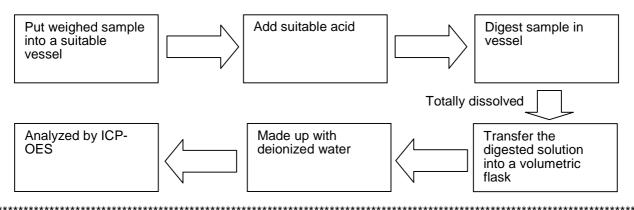
Testing Item	Testing Method	Reporting Limit
Cadmium (Cd) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI)(Cr ⁶⁺) Content	With reference to IEC 62321 Edition 1.0:2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1 mg/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 received: Jun 09, 2012

Testing period: Jun 09, 2012 to Jun 16, 2012

(D) Measurement Flowchart:

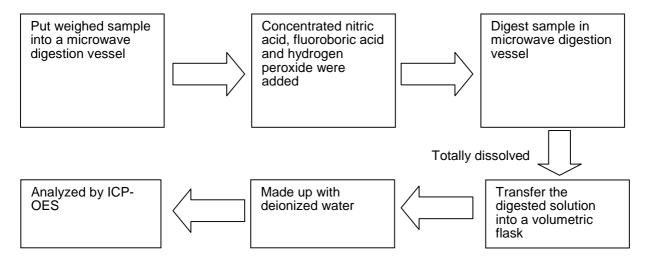
1. Test for Cd/Pb Contents



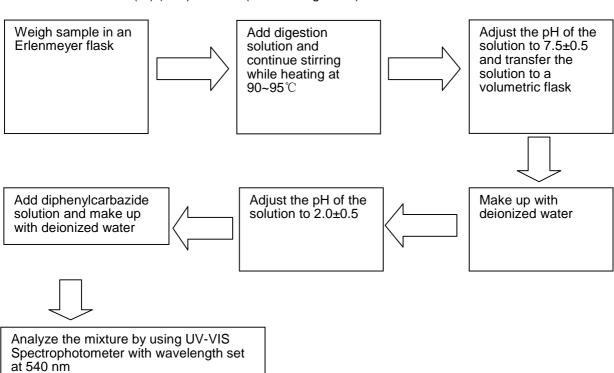


Tests Conducted

2. Test for Hg Content



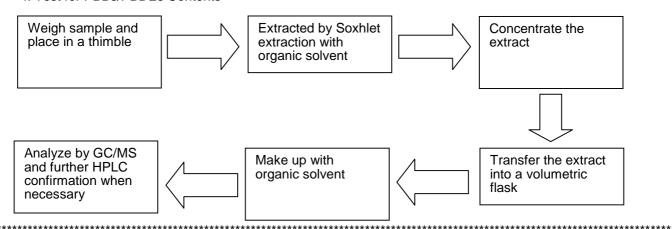
3. Test for Chromium (VI) (Cr⁶⁺) Content (Alkaline Digestion)





Tests Conducted

4. Test for PBBs/PBDEs Contents



End of report



Date:

Jun 19, 2012

Applicant: LITTELFUSE, INC

8755 WEST HIGGINS ROAD SUITE

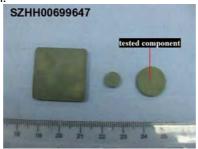
500CHICAGO IL 60631 USA

KRISTEEN BACILA/ARSENIO CESISTA JR. Attn:

Sample Description:

One (1) submitted sample said to be **DM black disc.**

Tested component: black solid material.



Tests conducted:

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

Conclusion:

Tested Samples Tested component of submitted sample

Standard

Restriction of the use of certain hazardous substance in electrical electronic and equipment (RoHS Direction

2002/95/EC and supersedure 2011/65/EU)

Result

Pass

Authorized by: For Intertek Testing Services

Shenzhen Ltd.

Ben N.L. Lin General Manager



Tests Conducted

RoHS Chemical Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND(<2)
Lead (Pb) Content (mg/kg)	ND(<2)
Mercury (Hg) Content (mg/kg)	ND(<2)
Chromium (VI)(Cr ⁶⁺) Content (mg/kg)	10
Polybrominated Biphenyls (PBBs)(mg/kg)	
Monobromobiphenyl (MonoBB)	ND(<5)
Dibromobiphenyl (DiBB)	ND(<5)
Tribromobiphenyl (TriBB)	ND(<5)
Tetrabromobiphenyl (TetraBB)	ND(<5)
Pentabromobiphenyl (PentaBB)	ND(<5)
Hexabromobiphenyl (HexaBB)	ND(<5)
Heptabromobiphenyl (HeptaBB)	ND(<5)
Octabromobiphenyl (OctaBB)	ND(<5)
Nonabromobiphenyl (NonaBB)	ND(<5)
Decabromobiphenyl (DecaBB)	ND(<5)
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
Monobromodiphenyl Ether (MonoBDE)	ND(<5)
Dibromodiphenyl Ether (DiBDE)	ND(<5)
Tribromodiphenyl Ether (TriBDE)	ND(<5)
Tetrabromodiphenyl Ether (TetraBDE)	ND(<5)
Pentabromodiphenyl Ether (PentaBDE)	ND(<5)
Hexabromodiphenyl Ether (HexaBDE)	ND(<5)
Heptabromodiphenyl Ether (HeptaBDE)	ND(<5)
Octabromodiphenyl Ether (OctaBDE)	ND(<5)
Nonabromodiphenyl Ether (NonaBDE)	ND(<5)
Decabromodiphenyl Ether (DecaBDE)	ND(<5)

Chemist: Wang Haijun/Zeng Guoliang

mg/kg = milligram per kilogram = ppm < = Less than

ND = Not detected



Tests Conducted

(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 2002/95/EC and supersedure 2011/65/EU for homogeneous material.

(C) Test Method:

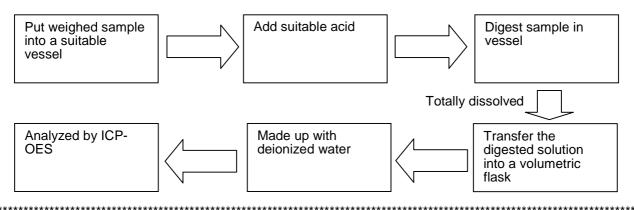
Testing Item	Testing Method	Reporting Limit
Cadmium (Cd) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI)(Cr ⁶⁺) Content	With reference to IEC 62321 Edition 1.0:2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1 mg/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 received: Jun 09, 2012

Testing period: Jun 09, 2012 to Jun 16, 2012

(D) Measurement Flowchart:

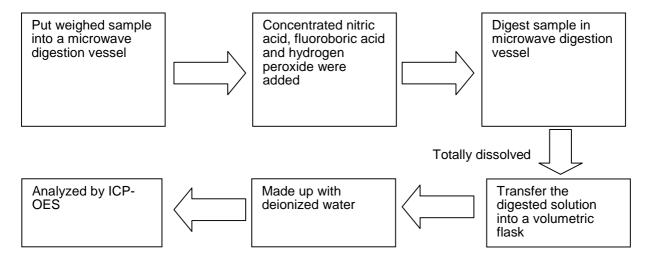
1. Test for Cd/Pb Contents



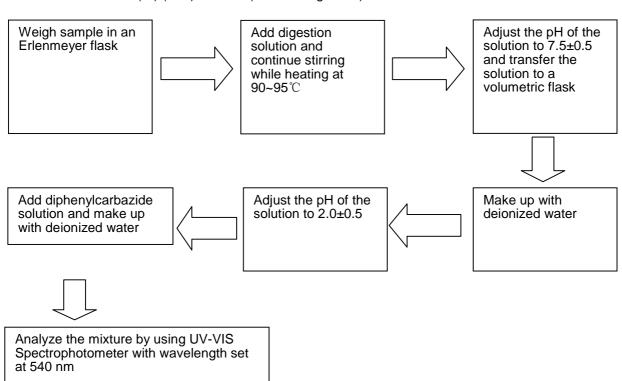


Tests Conducted

2. Test for Hg Content



3. Test for Chromium (VI) (Cr⁶⁺) Content (Alkaline Digestion)

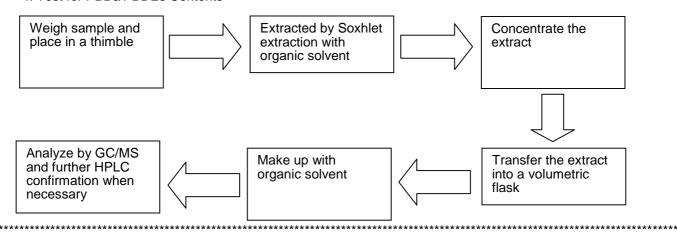


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Tests Conducted

4. Test for PBBs/PBDEs Contents



End of report



Date:

Jun 19, 2012

Applicant: LITTELFUSE, INC

8755 WEST HIGGINS ROAD SUITE

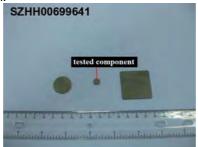
500CHICAGO IL 60631 USA

KRISTEEN BACILA/ARSENIO CESISTA JR. Attn:

Sample Description:

One (1) submitted sample said to be **DP black disc.**

Tested component: black solid material.



Tests conducted:

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

Conclusion:

Tested Samples Tested component of submitted sample

Standard

Restriction of the use of certain hazardous substance in electrical electronic and equipment (RoHS Direction

2002/95/EC and supersedure 2011/65/EU)

Authorized by:

For Intertek Testing Services

Shenzhen Ltd.

Ben N.L. Lin General Manager Result

Pass



Tests Conducted

RoHS Chemical Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND(<2)
Lead (Pb) Content (mg/kg)	ND(<2)
Mercury (Hg) Content (mg/kg)	ND(<2)
Chromium (VI)(Cr ⁶⁺) Content (mg/kg)	26
Polybrominated Biphenyls (PBBs)(mg/kg)	
Monobromobiphenyl (MonoBB)	ND(<5)
Dibromobiphenyl (DiBB)	ND(<5)
Tribromobiphenyl (TriBB)	ND(<5)
Tetrabromobiphenyl (TetraBB)	ND(<5)
Pentabromobiphenyl (PentaBB)	ND(<5)
Hexabromobiphenyl (HexaBB)	ND(<5)
Heptabromobiphenyl (HeptaBB)	ND(<5)
Octabromobiphenyl (OctaBB)	ND(<5)
Nonabromobiphenyl (NonaBB)	ND(<5)
Decabromobiphenyl (DecaBB)	ND(<5)
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
Monobromodiphenyl Ether (MonoBDE)	ND(<5)
Dibromodiphenyl Ether (DiBDE)	ND(<5)
Tribromodiphenyl Ether (TriBDE)	ND(<5)
Tetrabromodiphenyl Ether (TetraBDE)	ND(<5)
Pentabromodiphenyl Ether (PentaBDE)	ND(<5)
Hexabromodiphenyl Ether (HexaBDE)	ND(<5)
Heptabromodiphenyl Ether (HeptaBDE)	ND(<5)
Octabromodiphenyl Ether (OctaBDE)	ND(<5)
Nonabromodiphenyl Ether (NonaBDE)	ND(<5)
Decabromodiphenyl Ether (DecaBDE)	ND(<5)

Chemist: Wang Haijun/Zeng Guoliang

mg/kg = milligram per kilogram = ppm < = Less than

ND = Not detected



Tests Conducted

(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 2002/95/EC and supersedure 2011/65/EU for homogeneous material.

(C) Test Method:

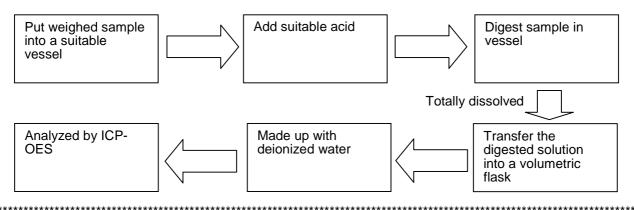
Testing Item	Testing Method	Reporting Limit
Cadmium (Cd) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI)(Cr ⁶⁺) Content	With reference to IEC 62321 Edition 1.0:2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1 mg/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 received: Jun 09, 2012

Testing period: Jun 09, 2012 to Jun 16, 2012

(D) Measurement Flowchart:

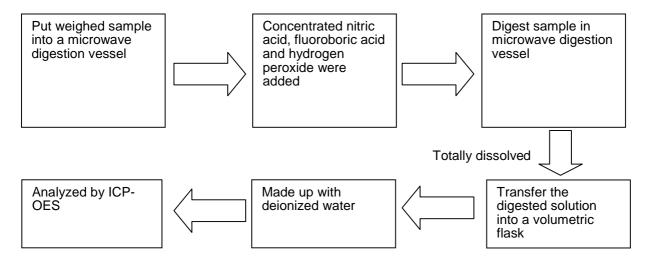
1. Test for Cd/Pb Contents



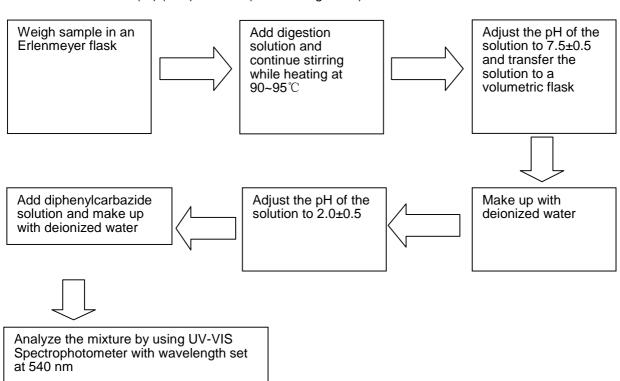


Tests Conducted

2. Test for Hg Content



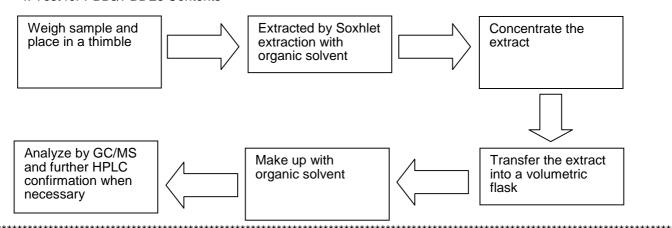
3. Test for Chromium (VI) (Cr⁶⁺) Content (Alkaline Digestion)





Tests Conducted

4. Test for PBBs/PBDEs Contents



End of report



Date:

Jun 18, 2012

Result

Pass

Applicant: LITTELFUSE, INC

8755 WEST HIGGINS ROAD SUITE

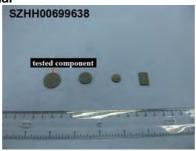
500CHICAGO IL 60631 USA

KRISTEEN BACILA/ARSENIO CESISTA JR. Attn:

Sample Description:

One (1) submitted sample said to be **DV black disc.**

Tested component: black solid material



Tests conducted:

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

Conclusion:

Tested Samples Tested component of submitted sample

Standard

Restriction of the use of certain hazardous substance in electrical electronic and equipment (RoHS Direction

2002/95/EC and supersedure 2011/65/EU)

Authorized by:

For Intertek Testing Services

Shenzhen Ltd.

Ben N.L. Lin General Manager



Tests Conducted

RoHS Chemical Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND(<2)
Lead (Pb) Content (mg/kg)	ND(<2)
Mercury (Hg) Content (mg/kg)	ND(<2)
Chromium (VI)(Cr ⁶⁺) Content (mg/kg)	ND(<1)
Polybrominated Biphenyls (PBBs)(mg/kg)	
Monobromobiphenyl (MonoBB)	ND(<5)
Dibromobiphenyl (DiBB)	ND(<5)
Tribromobiphenyl (TriBB)	ND(<5)
Tetrabromobiphenyl (TetraBB)	ND(<5)
Pentabromobiphenyl (PentaBB)	ND(<5)
Hexabromobiphenyl (HexaBB)	ND(<5)
Heptabromobiphenyl (HeptaBB)	ND(<5)
Octabromobiphenyl (OctaBB)	ND(<5)
Nonabromobiphenyl (NonaBB)	ND(<5)
Decabromobiphenyl (DecaBB)	ND(<5)
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
Monobromodiphenyl Ether (MonoBDE)	ND(<5)
Dibromodiphenyl Ether (DiBDE)	ND(<5)
Tribromodiphenyl Ether (TriBDE)	ND(<5)
Tetrabromodiphenyl Ether (TetraBDE)	ND(<5)
Pentabromodiphenyl Ether (PentaBDE)	ND(<5)
Hexabromodiphenyl Ether (HexaBDE)	ND(<5)
Heptabromodiphenyl Ether (HeptaBDE)	ND(<5)
Octabromodiphenyl Ether (OctaBDE)	ND(<5)
Nonabromodiphenyl Ether (NonaBDE)	ND(<5)
Decabromodiphenyl Ether (DecaBDE)	ND(<5)

Chemist: Wang Haijun/ Zeng Guoliang

mg/kg = milligram per kilogram = ppm < = Less than

ND = Not detected

Page 2 of 5



Tests Conducted

(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 2002/95/EC and supersedure 2011/65/EU for homogeneous material.

(C) Test Method:

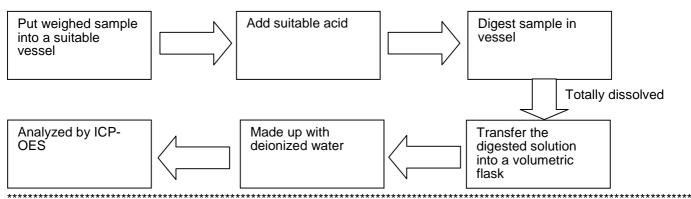
Testing Item	Testing Method	Reporting Limit
Cadmium (Cd) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI)(Cr ⁶⁺) Content	With reference to IEC 62321 Edition 1.0:2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1 mg/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 received: Jun 09, 2012

Testing period: Jun 09, 2012 to Jun 14, 2012

(D) Measurement Flowchart:

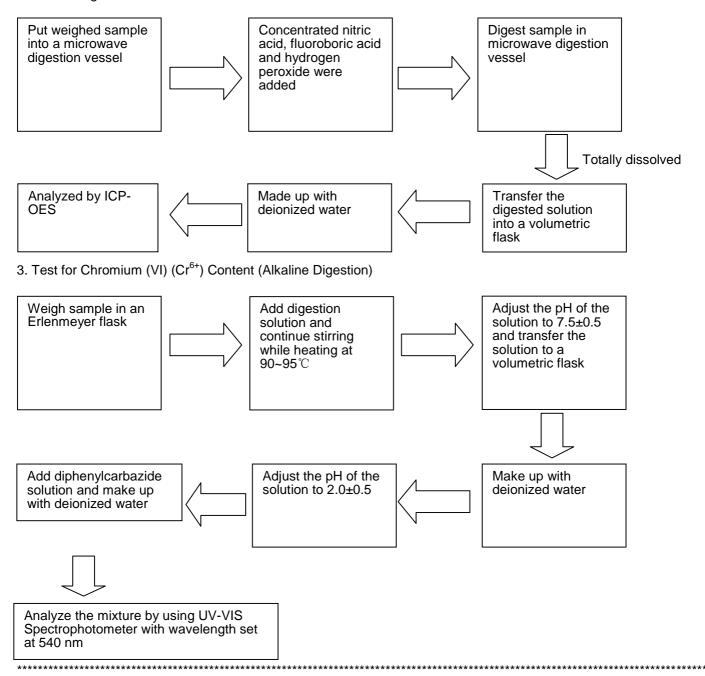
1. Test for Cd/Pb Contents





Tests Conducted

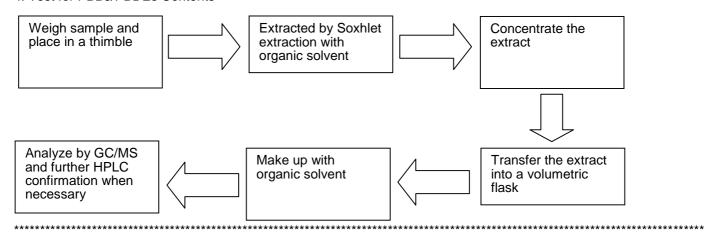
2. Test for Hg Content





Tests Conducted

4. Test for PBBs/PBDEs Contents



End of report



Date:

Jun 19, 2012

Result

Pass

Applicant: LITTELFUSE, INC

8755 WEST HIGGINS ROAD SUITE

500CHICAGO IL 60631 USA

KRISTEEN BACILA/ARSENIO CESISTA JR. Attn:

Sample Description:

One (1) submitted sample said to be DH black disc.

Tested component: black solid material.



Tests conducted:

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

Conclusion:

Tested Samples
Tested component of submitted sample

Standard

Restriction of the use of certain hazardous substance in electrical electronic and equipment (RoHS Direction 2002/95/EC and supersedure 2011/65/EU)

Authorized by:

For Intertek Testing Services

Shenzhen Ltd.

Ben N.L. Lin General Manager



Tests Conducted

RoHS Chemical Test

(A) Test Result Summary:

Testing Item	Result	
Cadmium (Cd) Content (mg/kg)	ND(<2)	
Lead (Pb) Content (mg/kg)	ND(<2)	
Mercury (Hg) Content (mg/kg)	ND(<2)	
Chromium (VI)(Cr ⁶⁺) Content (mg/kg)	4	
Polybrominated Biphenyls (PBBs)(mg/kg)		
Monobromobiphenyl (MonoBB)	ND(<5)	
Dibromobiphenyl (DiBB)	ND(<5)	
Tribromobiphenyl (TriBB)	ND(<5)	
Tetrabromobiphenyl (TetraBB)	ND(<5)	
Pentabromobiphenyl (PentaBB)	ND(<5)	
Hexabromobiphenyl (HexaBB)	ND(<5)	
Heptabromobiphenyl (HeptaBB)	ND(<5)	
Octabromobiphenyl (OctaBB)	ND(<5)	
Nonabromobiphenyl (NonaBB)	ND(<5)	
Decabromobiphenyl (DecaBB)	ND(<5)	
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)		
Monobromodiphenyl Ether (MonoBDE)	ND(<5)	
Dibromodiphenyl Ether (DiBDE)	ND(<5)	
Tribromodiphenyl Ether (TriBDE)	ND(<5)	
Tetrabromodiphenyl Ether (TetraBDE)	ND(<5)	
Pentabromodiphenyl Ether (PentaBDE)	ND(<5)	
Hexabromodiphenyl Ether (HexaBDE)	ND(<5)	
Heptabromodiphenyl Ether (HeptaBDE)	ND(<5)	
Octabromodiphenyl Ether (OctaBDE)	ND(<5)	
Nonabromodiphenyl Ether (NonaBDE)	ND(<5)	
Decabromodiphenyl Ether (DecaBDE)	ND(<5)	

Chemist: Wang Haijun/Zeng Guoliang

mg/kg = milligram per kilogram = ppm

< = Less than ND = Not detected



Tests Conducted

(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 2002/95/EC and supersedure 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 and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI)(Cr ⁶⁺) Content	With reference to IEC 62321 Edition 1.0:2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1 mg/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 received: Jun 09, 2012 Testing period: Jun 09, 2012 to Jun 16, 2012

(D) Measurement Flowchart:

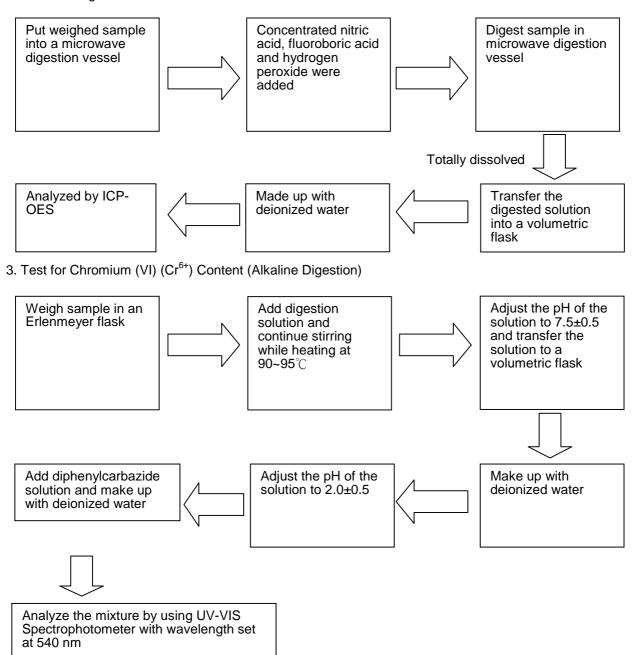
1. Test for Cd/Pb Contents

Add suitable acid Put weighed sample Digest sample in into a suitable vessel vessel Totally dissolved Analyzed by ICP-Made up with Transfer the deionized water digested solution OES into a volumetric flask



Tests Conducted

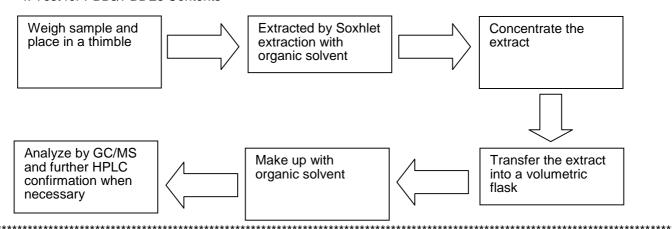
2. Test for Hg Content





Tests Conducted

4. Test for PBBs/PBDEs Contents



End of report



Date:

Jun 19, 2012

Result

Pass

Applicant: LITTELFUSE, INC

8755 WEST HIGGINS ROAD SUITE

500CHICAGO IL 60631 USA

KRISTEEN BACILA/ARSENIO CESISTA JR. Attn:

Sample Description:

One (1) submitted sample said to be HD black disc.

Tested component: black solid material.



Tests conducted:

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

Conclusion:

Tested Samples
Tested component of submitted sample

Standard

Restriction of the use of certain hazardous substance in electrical electronic and equipment (RoHS Direction 2002/95/EC and supersedure 2011/65/EU)

Authorized by:

For Intertek Testing Services

Shenzhen Ltd.

Ben N.L. Lin General Manager



Tests Conducted

RoHS Chemical Test

(A) Test Result Summary:

Testing Item	Result	
Cadmium (Cd) Content (mg/kg)	ND(<2)	
Lead (Pb) Content (mg/kg)	ND(<2)	
Mercury (Hg) Content (mg/kg)	ND(<2)	
Chromium (VI)(Cr ⁶⁺) Content (mg/kg)	6	
Polybrominated Biphenyls (PBBs)(mg/kg)		
Monobromobiphenyl (MonoBB)	ND(<5)	
Dibromobiphenyl (DiBB)	ND(<5)	
Tribromobiphenyl (TriBB)	ND(<5)	
Tetrabromobiphenyl (TetraBB)	ND(<5)	
Pentabromobiphenyl (PentaBB)	ND(<5)	
Hexabromobiphenyl (HexaBB)	ND(<5)	
Heptabromobiphenyl (HeptaBB)	ND(<5)	
Octabromobiphenyl (OctaBB)	ND(<5)	
Nonabromobiphenyl (NonaBB)	ND(<5)	
Decabromobiphenyl (DecaBB)	ND(<5)	
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)		
Monobromodiphenyl Ether (MonoBDE)	ND(<5)	
Dibromodiphenyl Ether (DiBDE)	ND(<5)	
Tribromodiphenyl Ether (TriBDE)	ND(<5)	
Tetrabromodiphenyl Ether (TetraBDE)	ND(<5)	
Pentabromodiphenyl Ether (PentaBDE)	ND(<5)	
Hexabromodiphenyl Ether (HexaBDE)	ND(<5)	
Heptabromodiphenyl Ether (HeptaBDE)	ND(<5)	
Octabromodiphenyl Ether (OctaBDE)	ND(<5)	
Nonabromodiphenyl Ether (NonaBDE)	ND(<5)	
Decabromodiphenyl Ether (DecaBDE)	ND(<5)	

Chemist: Wang Haijun/Zeng Guoliang

mg/kg = milligram per kilogram = ppm

< = Less than ND = Not detected



Tests Conducted

(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 2002/95/EC and supersedure 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 and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI)(Cr ⁶⁺) Content	With reference to IEC 62321 Edition 1.0:2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1 mg/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 received: Jun 09, 2012 Testing period: Jun 09, 2012 to Jun 16, 2012

(D) Measurement Flowchart:

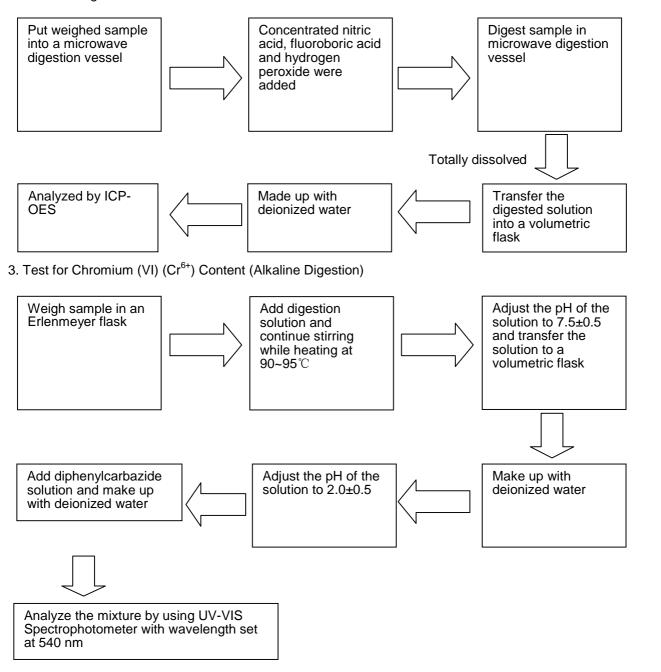
1. Test for Cd/Pb Contents

Add suitable acid Put weighed sample Digest sample in into a suitable vessel vessel Totally dissolved Analyzed by ICP-Made up with Transfer the deionized water digested solution OES into a volumetric flask



Tests Conducted

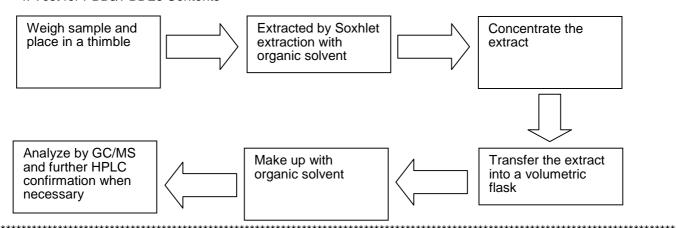
2. Test for Hg Content





Tests Conducted

4. Test for PBBs/PBDEs Contents



End of report



Date:

Jun 19, 2012

Result

Pass

Applicant: LITTELFUSE, INC

8755 WEST HIGGINS ROAD SUITE

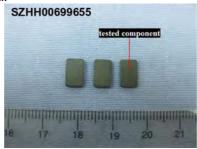
500CHICAGO IL 60631 USA

KRISTEEN BACILA/ARSENIO CESISTA JR. Attn:

Sample Description:

One (1) submitted sample said to be HH black disc.

Tested component: black solid material.



Tests conducted:

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

Conclusion:

Tested Samples
Tested component of submitted sample

Standard

Restriction of the use of certain hazardous substance in electrical electronic and equipment (RoHS Direction 2002/95/EC and supersedure 2011/65/EU)

Authorized by:

For Intertek Testing Services

Shenzhen Ltd.

Ben N.L. Lin General Manager



Tests Conducted

RoHS Chemical Test

(A) Test Result Summary:

Testing Item	Result	
Cadmium (Cd) Content (mg/kg)	ND(<2)	
Lead (Pb) Content (mg/kg)	ND(<2)	
Mercury (Hg) Content (mg/kg)	ND(<2)	
Chromium (VI)(Cr ⁶⁺) Content (mg/kg)	7	
Polybrominated Biphenyls (PBBs)(mg/kg)		
Monobromobiphenyl (MonoBB)	ND(<5)	
Dibromobiphenyl (DiBB)	ND(<5)	
Tribromobiphenyl (TriBB)	ND(<5)	
Tetrabromobiphenyl (TetraBB)	ND(<5)	
Pentabromobiphenyl (PentaBB)	ND(<5)	
Hexabromobiphenyl (HexaBB)	ND(<5)	
Heptabromobiphenyl (HeptaBB)	ND(<5)	
Octabromobiphenyl (OctaBB)	ND(<5)	
Nonabromobiphenyl (NonaBB)	ND(<5)	
Decabromobiphenyl (DecaBB)	ND(<5)	
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)		
Monobromodiphenyl Ether (MonoBDE)	ND(<5)	
Dibromodiphenyl Ether (DiBDE)	ND(<5)	
Tribromodiphenyl Ether (TriBDE)	ND(<5)	
Tetrabromodiphenyl Ether (TetraBDE)	ND(<5)	
Pentabromodiphenyl Ether (PentaBDE)	ND(<5)	
Hexabromodiphenyl Ether (HexaBDE)	ND(<5)	
Heptabromodiphenyl Ether (HeptaBDE)	ND(<5)	
Octabromodiphenyl Ether (OctaBDE)	ND(<5)	
Nonabromodiphenyl Ether (NonaBDE)	ND(<5)	
Decabromodiphenyl Ether (DecaBDE)	ND(<5)	

Chemist: Wang Haijun/Zeng Guoliang

mg/kg = milligram per kilogram = ppm

< = Less than ND = Not detected



Tests Conducted

(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 2002/95/EC and supersedure 2011/65/EU for homogeneous material.

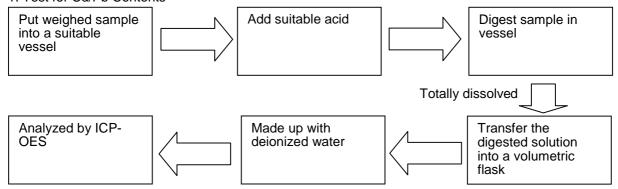
(C) Test Method:

Testing Item	Testing Method	Reporting Limit
Cadmium (Cd) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI)(Cr ⁶⁺) Content	With reference to IEC 62321 Edition 1.0:2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1 mg/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 received: Jun 09, 2012 Testing period: Jun 09, 2012 to Jun 16, 2012

(D) Measurement Flowchart:

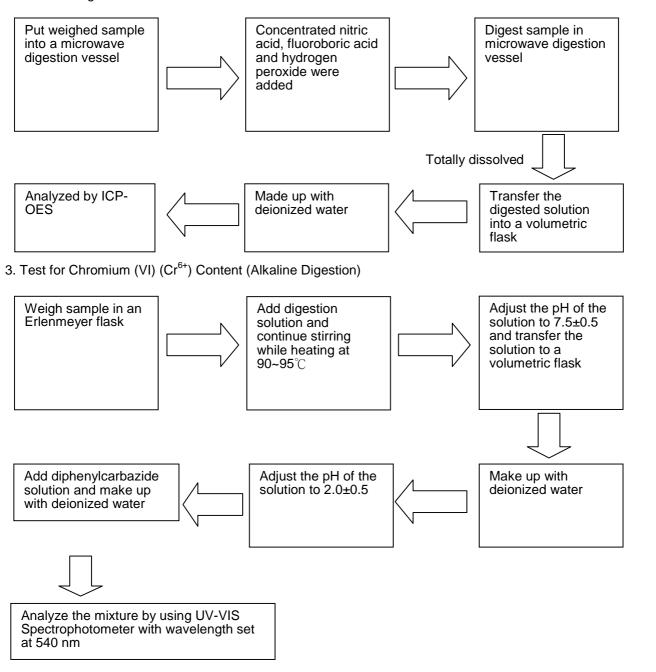
1. Test for Cd/Pb Contents





Tests Conducted

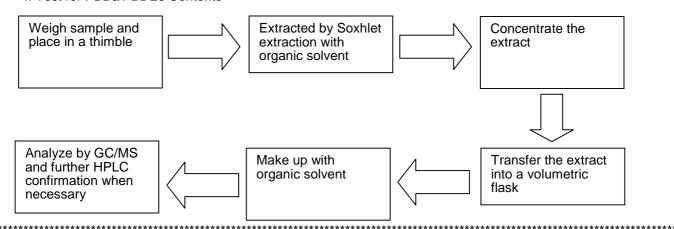
2. Test for Hg Content





Tests Conducted

4. Test for PBBs/PBDEs Contents



End of report



Date:

Jun 19, 2012

Applicant: LITTELFUSE, INC

8755 WEST HIGGINS ROAD SUITE

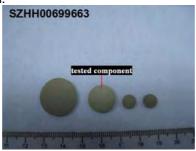
500CHICAGO IL 60631 USA

KRISTEEN BACILA/ARSENIO CESISTA JR. Attn:

Sample Description:

One (1) submitted sample said to be **HM black disc.**

Tested component: black solid material.



Tests conducted:

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

Conclusion:

Tested Samples Tested component of submitted sample

Standard

Restriction of the use of certain hazardous substance in electrical electronic and equipment (RoHS Direction

2002/95/EC and supersedure 2011/65/EU)

Result

Pass

Authorized by:

For Intertek Testing Services

Shenzhen Ltd.

Ben N.L. Lin General Manager



Tests Conducted

RoHS Chemical Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND(<2)
Lead (Pb) Content (mg/kg)	ND(<2)
Mercury (Hg) Content (mg/kg)	ND(<2)
Chromium (VI)(Cr ⁶⁺) Content (mg/kg)	4
Polybrominated Biphenyls (PBBs)(mg/kg)	
Monobromobiphenyl (MonoBB)	ND(<5)
Dibromobiphenyl (DiBB)	ND(<5)
Tribromobiphenyl (TriBB)	ND(<5)
Tetrabromobiphenyl (TetraBB)	ND(<5)
Pentabromobiphenyl (PentaBB)	ND(<5)
Hexabromobiphenyl (HexaBB)	ND(<5)
Heptabromobiphenyl (HeptaBB)	ND(<5)
Octabromobiphenyl (OctaBB)	ND(<5)
Nonabromobiphenyl (NonaBB)	ND(<5)
Decabromobiphenyl (DecaBB)	ND(<5)
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
Monobromodiphenyl Ether (MonoBDE)	ND(<5)
Dibromodiphenyl Ether (DiBDE)	ND(<5)
Tribromodiphenyl Ether (TriBDE)	ND(<5)
Tetrabromodiphenyl Ether (TetraBDE)	ND(<5)
Pentabromodiphenyl Ether (PentaBDE)	ND(<5)
Hexabromodiphenyl Ether (HexaBDE)	ND(<5)
Heptabromodiphenyl Ether (HeptaBDE)	ND(<5)
Octabromodiphenyl Ether (OctaBDE)	ND(<5)
Nonabromodiphenyl Ether (NonaBDE)	ND(<5)
Decabromodiphenyl Ether (DecaBDE)	ND(<5)

Chemist: Wang Haijun/Zeng Guoliang

mg/kg = milligram per kilogram = ppm < = Less than

ND = Not detected



Tests Conducted

(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 2002/95/EC and supersedure 2011/65/EU for homogeneous material.

(C) Test Method:

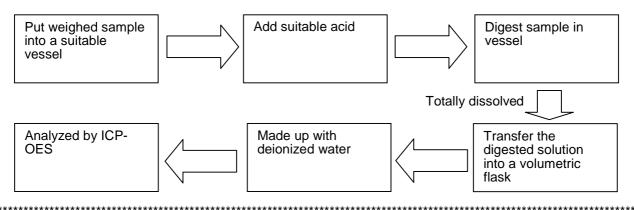
Testing Item	Testing Item Testing Method	
Cadmium (Cd) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI)(Cr ⁶⁺) Content	With reference to IEC 62321 Edition 1.0:2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1 mg/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 received: Jun 09, 2012

Testing period: Jun 09, 2012 to Jun 16, 2012

(D) Measurement Flowchart:

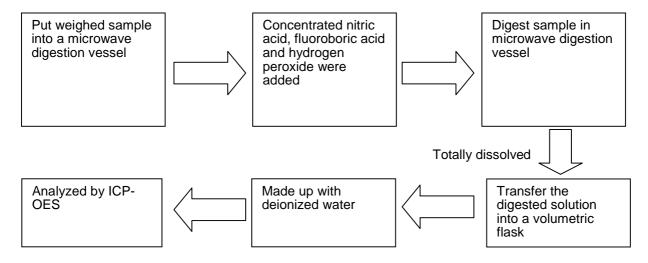
1. Test for Cd/Pb Contents



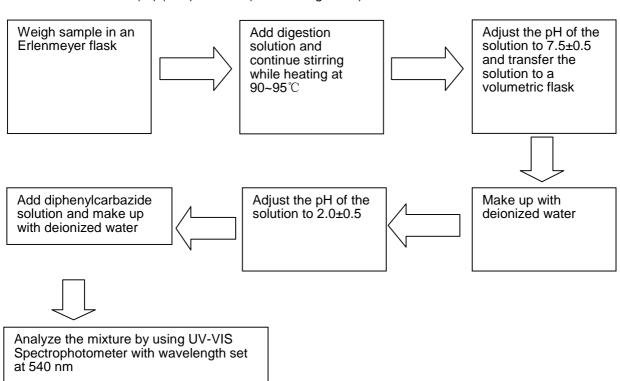


Tests Conducted

2. Test for Hg Content



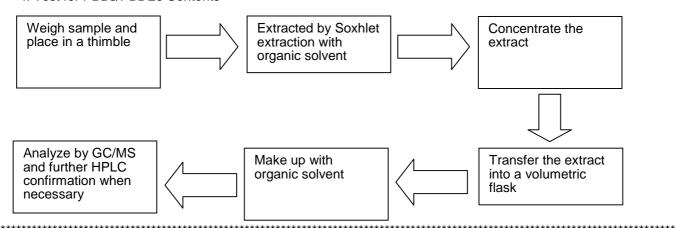
3. Test for Chromium (VI) (Cr⁶⁺) Content (Alkaline Digestion)





Tests Conducted

4. Test for PBBs/PBDEs Contents



End of report



No. SHAEC1201680106

Date: 21 Feb 2012

Page 1 of 6

SHIN-NIHON KAKIN CO.,LTD 1-6,MIYAMOTO,ITABASHI,TOKYO.JAPAN

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

SGS Job No. :

SP12-003156 - SH

Model No.:

SP-A6PL

Date of Sample Received :

17 Feb 2012

Testing Period:

17 Feb 2012 - 21 Feb 2012

Test Requested:

Selected test(s) as requested by client.

Test Method:

Please refer to next page(s).

Test Results:

Please refer to next page(s).

Conclusion:

Based on the performed tests on submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS

Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of SGS-CSTC Ltd.

Fan Jingjie, JJ Approved Signatory

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[9]



No. SHAEC1201680106

Date: 21 Feb 2012

Page 2 of 6

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description

SHA12-016801.006 Green paste

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	<u>Unit</u>	MDL	006
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1,000	mg/kg	2	ND
Sum of PBBs	1,000	mg/kg		ND
Monobromobiphenyl		mg/kg	5	ND
Dibromobiphenyl	9,1	mg/kg	5	ND
Tribromobiphenyl	1.4	mg/kg	5	ND
Tetrabromobiphenyl	(-)	mg/kg	5	ND
Pentabromobiphenyl		mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	12	mg/kg	5	ND
Octabromobiphenyl	4.4	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

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3"Building,No.889 Yishan Road Xuhui District,Shanghai China 200233中國·上海·徐江区宜山路889号3号楼 邮编: 200233

www.cn.sgs.com e sgs.china@sgs.com



Test Report	No. SHAEC12016801	06	Date: 21	Feb 2012	Page 3 of 6
Test Item(s)	<u>Limit</u>	<u>Unit</u>	MDL	<u>006</u>	
Dibromodiphenyl ether	-	mg/kg	5	ND	
Tribromodiphenyl ether	-	mg/kg	5	ND	
Tetrabromodiphenyl ether	5	mg/kg	5	ND	
Pentabromodiphenyl ether	-	mg/kg	5	ND	
Hexabromodiphenyl ether	-	mg/kg	5	ND	
Heptabromodiphenyl ether	-	mg/kg	5	ND	
Octabromodiphenyl ether	(C 2)	mg/kg	5	ND	
Nonabromodiphenyl ether	-	mg/kg	5	ND	
Decabromodiphenyl ether	7°4	mg/kg	5	ND	

Notes:

- (1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II
- (2) Result shown is of the total weight of wet sample.

Halogen

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

Test Item(s)	<u>Unit</u>	MDL	006
Fluorine (F)	mg/kg	50	ND
Chlorine (CI)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
lodine (I)	mg/kg	50	ND

Notes:

(1) Result shown is of the total weight of wet sample.

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If the company is a process of the company is a processor of the content or appearance of the sample(s) tested.

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No. SHAEC1201680106

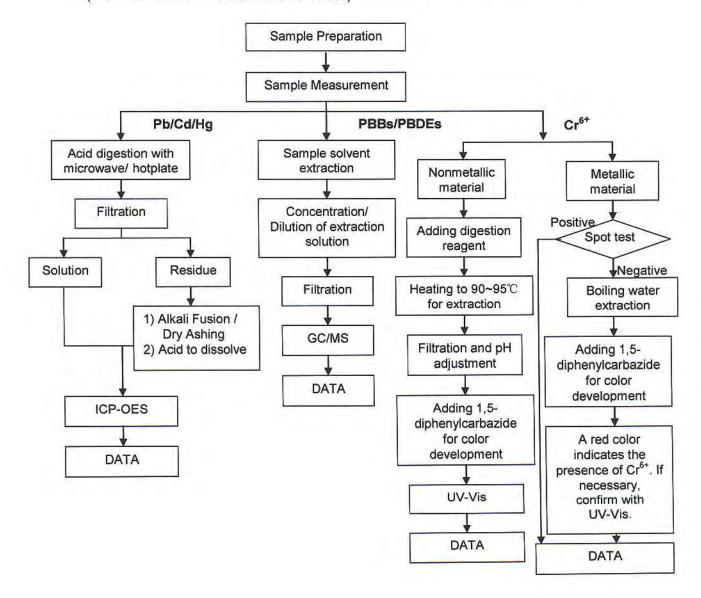
Date: 21 Feb 2012

Page 4 of 6

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/ Elim Lin
- These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr6+ and PBBs/PBDEs test method excluded)



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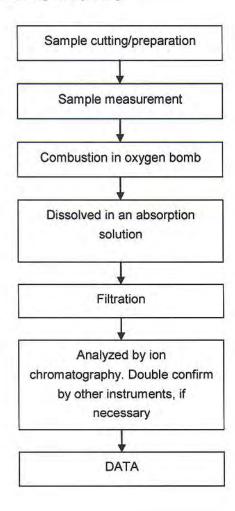
No. SHAEC1201680106

Date: 21 Feb 2012

Page 5 of 6

Halogen Testing Flow Chart

- 1) Name of the person who made testing: Sisily Yin
- 2) Name of the person in charge of testing: Daisy Gong



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Sample photo:



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No. SHAEC1203840702

Date: 09 Apr 2012

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SHIN-NIHON KAKIN CO.,LTD. 1-6,MIYAMOTO, ITABASHI,TOKYO,JAPAN

The following sample(s) was/were submitted and identified on behalf of the clients as: SILVER PASTE.

SGS Job No. :

SP12-007978 - SH

Model No.:

SP-A6PL

Date of Sample Received:

05 Apr 2012

Testing Period:

05 Apr 2012 - 09 Apr 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.

Fan Jingjie, JJ

Approved Signatory

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Date: 09 Apr 2012

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Test Results:

Test Part Description:

Specimen No.

SGS Sample ID

Description

1

SHA12-038407.002

Ink green mud

Remarks:

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

Phthalates

Test Method: With reference to EN14372: 2004, analysis was performed by GC-MS.

Test Item(s)	Unit	MDL	002
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	ND
Benzylbutyl Phthalate (BBP)	%	0.003	ND
Dibutyl Phthalate (DBP)	%.	0.003	ND

Notes:

- (1) DBP,BBP,DEHP Reference information: Entry 51 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC);
 - Shall not be used as substances or in mixtures, in concentrations greater than 0,1 % by weight of the plasticised material, in toys and childcare articles.
 - ii) Toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.

Please refer to Regulation (EC) No 552/2009 to get more detail information

Hexabromocyclododecane (HBCDD)

Test Method: With reference to US EPA 3550C: 2007, analysis was performed by GC-MS.

Test Item(s)
Hexabromocyclododecane (HBCDD)

Unit.

MDL

mg/kg 10

ND

002

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Date: 09 Apr 2012

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Remark: Result shown is of the total weight of wet sample.

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(allows after the standard feature shown in this test report refer only to the sample(s) lested.



No. SHAEC1203840702

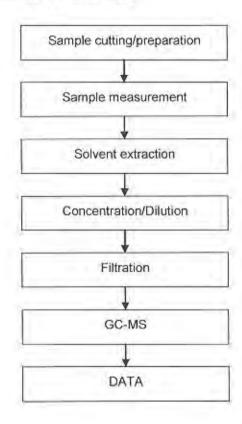
Date: 09 Apr 2012

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ATTACHMENTS

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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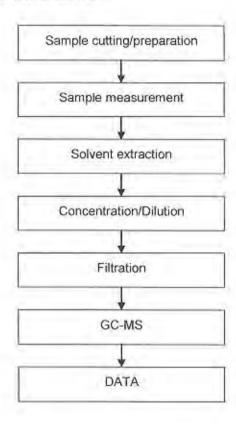
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HBCDD Testing Flow Chart

- 1) Name of the person who made testing: Gary Xu
- 2) Name of the person in charge of testing: Elim Lin



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Sample photo:



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ANSON SOLDER & TIN PRUDUCTS MADE LTD
CHANG HONG RIDGE INDUSTRIAL PARK DAIL NANHAI GUANGDONG

This report is to supersede test report CANAUTO1210273201

The following sample(s) was/were submitted and identified on behalf of the applicant as Lead-free Solder SnAgCu

SGS Job No. : SCATR1207000558-1

Date of Sample Received : 30 Jul 2012

Testing Period : 30 Jul 2012 - 03 Aug 2012

Test Requested: A: As requested by client, SVHC screening is performed according to:

(i) Specified substances in the Candidate List of Substances of Very High Concern (SVHC) for authorization published by European Chemicals Agency (ECHA) on and before Jun 18,

2012 regarding Regulation (EC) No 1907/2006 concerning the REACH.

B: Selected test (s) as requested by client.

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

Summary:

A: According to the specified scope and analytical techniques,

concentrations of tested SVHC are ≤ 0.1% (w/w) in the

submitted sample.

PASS

Conclusion:

B: 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.

Jenny Jiang J

Approved Signatory

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Test Sample:

1

Sample Description:

Specimen No. SGS Sample ID

Description

CAN12-102732.001

Silvery metal

A: SVHC

Remark:

(1) The chemical analysis of specified SVHC is performed by means of currently available analytical techniques against the following SVHC related documents published by ECHA:

http://echa.europa.eu/web/guest/candidate-list-table

These lists are under evaluation by ECHA and may subject to change in the future.

(2) Concerning article(s):

In accordance with Regulation (EC) No 1907/2006, any EU producer or importer of articles shall notify ECHA, in accordance with paragraph 4 of Article 7, if a substance meets the criteria in Article 57 and is identified in accordance with Article 59(1) of the Regulation, if (a) the substance in the Candidate List is present in those articles in quantities totaling over one tonne per producer or importer per year; and (b) the substance in the Candidate List is present in those articles above a concentration of 0.1% weight by weight (w/w).

Article 33 of Regulation (EC) No 1907/2006 requires supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above 0.1% weight by weight (w/w) shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance in the Candidate List.

SGS adopts the interpretation of ECHA for SVHC in article unless indicated otherwise. Detail explanation is available at the following link: http://webstage.contribute.sgs.net/corpreach/documents/SGS-CTS_SVHC-paper-EN-11.pdf

(3) Concerning material(s):

Test results in this report are based on the tested sample. This report refers to testing result of tested sample submitted as homogenous material(s). In case such material is being used to compose an article, the results indicated in this report may not represent SVHC concentration in such article. If this report refers to testing result of composite material group by equal weight proportion, the material in each composite test group may come from more than one article.

If the sample is a substance or mixture, and it directly exports to EU, client has the obligation to comply with the supply chain communication obligation under Article 31 of Regulation (EC) No. 1907/2006 and the conditions of Authorization of substance of very high concern included in the Annex XIV of the Regulation (EC) No. 1907/2006.

(4) Concerning substance and preparation:

If a SVHC is found over 0.1% (w/w) and/or the specific concentration limit which is set in Regulation (EC) No 1272/2008 and No 790/2009, client is suggested to prepare a Safety Data Sheet (SDS) against the

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SVHC to comply with the supply chain communication obligation under Regulation (EC) No 1907/2006, in which:

- a substance that is classified as hazardous under the CLP Regulation (EC) No 1272/2008.
- a mixture that is classified as dangerous according Dangerous Preparations Directive 1999/45/EC or classified as hazardous under the CLP Regulation (EC) No 1272/2008, when their concentrations are equal to, or greater than, those defined in the Article 3(3) of 1999/45/EC or the lower values given in Part 3 of Annex VI of Regulation (EC) No. 1272/2008; or
- a mixture is not classified as dangerous under Directive 1999/45/EC, but contains either:
- (a) a substance posing human health or environmental hazards in an individual concentration of \geq 1 % by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures) or \geq 0.2 % by volume for gaseous mixtures; or
- (b) a substance that is PBT, or vPvB in an individual concentration of ≥ 0.1 % by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures); or
- (c) a substance on the SVHC candidate list (for reasons other than those listed above), in an individual concentration of ≥ 0.1 % by weight for non-gaseous mixtures; or
- (d) a substance for which there are Europe-wide workplace exposure limits.
- (5) If a SVHC is found over the reporting limit, client is suggested to identify the component which contains the SVHC and the exact concentration of the SVHC by requesting further quantitative analysis from the laboratory.

Test Method:

SGS In-House method- GZTC CHEM-TOP-092-01, Analyzed by ICP-OES, UV-VIS.

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Test Result: (Substances in the Candidate List of SVHC)

Substance Name	CAS No.	EC No.	001 Concentration (%)	RL(%)
Aluminosilicate Refractory Ceramic Fibres **	650-017-00-8 (Index no.)	3.	ND	0.005
Ammonium dichromate*	7789-09-5	232-143-1	ND	0.005
Arsenic acid*	7778-39-4	231-901-9	ND	0.005
Boric acid*	10043-35-3 11113-50-1	233-139-2 234-343-4	ND	0.005
Calcium arsenate*	7778-44-1	231-904-5	ND	0.005
Chromic acid, Oligomers of chromic acid and dichromic acid, Dichromic acid*	7738-94-5 - 13530-68-2	231-801-5 - 236-881-5	ND	0.005
Chromium trioxide*	1333-82-0	215-607-8	ND	0.005
Cobalt dichloride*	7646-79-9	231-589-4	ND	0.005
Cobalt(II) carbonate*	513-79-1	208-169-4	ND	0.005
Cobalt(II) diacetate*	71-48-7	200-755-8	ND	0.005
Cobalt(II) dinitrate*	10141-05-6	233-402-1	ND	0.005
Cobalt(II) sulphate*	10124-43-3	233-334-2	ND	0.005
Diarsenic pentaoxide*	1303-28-2	215-116-9	ND	0.005
Diarsenic trioxide*	1327-53-3	215-481-4	ND	0.005
Diboron trioxide*	1303-86-2	215-125-8	ND	0.005
Dichromium tris(chromate)*	24613-89-6	246-356-2	ND	0.005
Disodium tetraborate, anhydrous*	1303-96-4 1330-43-4 12179-04-3	215-540-4	ND	0.005
Lead(II) bis(methanesulfonate)*	17570-76-2	401-750-5	ND	0.005
Lead chromate*	7758-97-6	231-846-0	ND	0.00

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Substance Name	CAS No.	EC No.	001 Concentration (%)	RL(%)
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)*	12656-85-8	235-759-9	ND	0.005
Lead diazide, Lead azide*	13424-46-9	236-542-1	ND	0.005
Lead dipicrate*	6477-64-1	229-335-2	ND	0.005
Lead hydrogen arsenate*	7784-40-9	232-064-2	ND	0.005
Lead styphnate*	15245-44-0	239-290-0	ND	0.005
Lead sulfochromate yellow (C.I. Pigment Yellow 34)*	1344-37-2	215-693-7	ND	0.005
Pentazinc chromate octahydroxide*	49663-84-5	256-418-0	ND	0.005
Potassium chromate*	7789-00-6	232-140-5	ND	0.005
Potassium dichromate*	7778-50-9	231-906-6	ND	0.005
Potassium hydroxyoctaoxodizincatedichromate*	11103-86-9	234-329-8	ND	0.005
Sodium chromate*	7775-11-3	231-889-5	ND	0.005
Sodium dichromate*	7789-12-0 10588-01-9	234-190-3	ND	0.005
Strontium chromate*	7789-06-2	232-142-6	ND	0.005
Tetraboron disodium heptaoxide, hydrate*	12267-73-1	235-541-3	ND	0.005
Trilead diarsenate*	3687-31-8	222-979-5	ND	0.005
Zirconia Aluminosilicate Refractory Ceramic Fibres**	650-017-00-8 (Index no.)		ND	0.005



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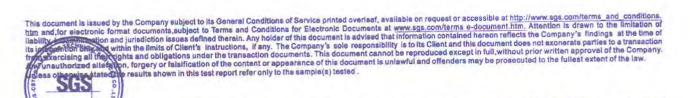
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Notes:

- (1) RL = Reporting Limit. All RL are based on homogenous material ND = Not detected (lower than RL), ND is denoted on the SVHC substance.
- (2) * The test result is based on the calculation of selected element(s) / marker(s) and to the worst-case scenario. For detail information, please refer to the SGS REACH website: www.reach.sgs.com/substance-of-very-high-concern-analysis-information-page.htm

Calculated concentration of diboron trioxide, boric acid, disodium tetraborate, anhydrous and tetraboron disodium heptaoxide, hydrate are based on the water extractive boron and sodium by ICP-OES.

- RL = 0.005% is evaluated for element (i.e. cobalt, arsenic, lead, sodium, chromium (VI), silicon, aluminum, zirconium, boron, potassium, strontium, zinc and calcium respectively), except molybdenum RL=0.0005%
- (3) On Jun 18, 2012, ECHA consolidated two entries of aluminosilicate refractory ceramic fibres and two of zirconia aluminosilicate refractory ceramic fibres in the Candidate List of SVHC for authorization published in Jan 2010 and Dec 2011 into one entry for aluminosilicate refractory ceramic fibres and one for zirconia aluminosilicate refractory ceramic fibres.





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B: 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 and PBDEs by GC-MS.

Test Item(s):	Limit	Unit	MDL	001
Cadmium(Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	53
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))			\Diamond	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
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	12	mg/kg	5	ND
Heptabromodiphenyl ether		mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	4.1	mg/kg	5	ND
Decabromodiphenyl ether		mg/kg	5	ND

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Notes:

(1) The maximum permissible limit is quoted from 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.



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Sample photo:



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No. TSNEC1110357903

Date: 26 Oct 2011

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Analyzed for Undisclosed Recipient upon request of: Littelfuse Inc. 8755 West Higgins Road, Suite 500, Chicago IL USA

The following sample(s) was/were submitted and identified on behalf of the clients as: TIN-COATED COPPER WIRE

SGS Job No.:

TP11-002184 - TJ

Composition:

Cu

Date of Sample Received:

21 Oct 2011

Testing Period:

21 Oct 2011 - 26 Oct 2011

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.

Reabeca Zhou

Approved Signatory

stin) Co.115



No. TSNEC1110357903

Date: 26 Oct 2011

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Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description

TSN11-103579.002 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	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))		-	0	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	10	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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Test Report	No. TSNEC111035790	03	Date: 26	Oct 2011	Page 3 of 5
Test Item(s)	<u>Limit</u>	<u>Unit</u>	MDL	002	
Dibromodiphenyl ether	100	mg/kg	5	ND	
Tribromodiphenyl ether		mg/kg	5	ND	
Tetrabromodiphenyl ether	-	mg/kg	5	ND	
Pentabromodiphenyl ether	2	mg/kg	5	ND	
Hexabromodiphenyl ether		mg/kg	5	ND	
Heptabromodiphenyl ether	141	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) O Spot-test:

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

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

Boiling-water-extraction:

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

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

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

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No. TSNEC1110357903

Date: 26 Oct 2011

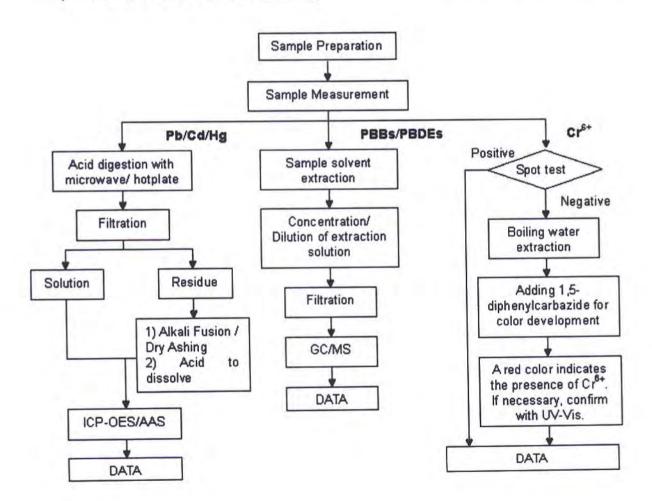
Page 4 of 5

ATTACHMENTS

ndants Technical Services Control Co., Ltd.

Cd/Pb/Hg/Cr⁶⁺/PBBs&PBDEs Testing Flow Chart

- 1) Name of the person who made testing: Aaron Wang/Jason Li/Angell Yao
- 2) Name of the person in charge of testing: Cindy Yin/Rex Zhu
- These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁸⁺ and PBBs/PBDEs test method excluded)



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Sample photo:



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測試報告

Test Report

號碼(No.): CE/2012/82966 日期(Date): 2012/08/24 頁數(Page): 1 of 8

東榮科技股份有限公司

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TOORONG TECHNOLOGY CORPORATION 桃園縣楊梅市幼獅工業區幼三路5號

NO. 5, YOU 3RD RD., YANGMEI CITY, TAOYUAN COUNTY 326, TAIWAN

以下測試樣品係由客户送樣,且由客户聲稱並經客户確認如下 (The following samples was/were submitted and identified by/on behalf of the client as):

樣品名稱(Sample Description)

TIN PLATED NICKEL COVERED COPPER WIRE (雷鍍純錫鎳底銅線)

樣品型號(Style/Item No.)

STN-(0.43)(0.45)(0.454)(0.5)(0.511)(0.574)(0.58)(0.6)(0.63)(0.635)

(0.643)(0.645)(0.65)(0.7)(0.724)(0.76)(0.8)(0.813)(1.0)(1.024)(1.2)

(1.29)(mm)

收件日期(Sample Receiving Date)

2012/08/20

測試期間(Testing Period)

2012/08/20 TO 2012/08/24

测試需求(Test Requested):

(1) 依據客户指定, 進行鎬, 鉛, 汞, 六價鉻測試. (As specified by client, to test Cadmium, Lead, Mercury, Cr(VI) contents in the submitted sample.)

(2) 依據客戶指定,進行全氟辛酸(銨)、全氟辛烷磺酸, 氟、氯, 溴、碘测試. (As specified by client, to test PFOA, PFOS and Halogen-Fluorine, Chlorine, Bromine, Iodine contents in the submitted sample.)

测試方法(Test Method)

請見下一頁 (Please refer to next pages).

测试結果(Test Results)

請見下一頁 (Please refer to next pages).



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測試報告

Test Report

號碼(No.): CE/2012/82966 日期(Date): 2012/08/24 頁數(Page): 2 of 8

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NO. 5, YOU 3RD RD., YANGMEI CITY, TAOYUAN COUNTY 326, TAIWAN

测試結果(Test Results)

測試部位(PART NAME)No.1

銀色金屬線 (含鍍層) (22款) (SILVER COLORED METAL WIRE (INCLUDING THE PLATING LAYER) (22 TYPES))

測試項目	單位	測試方法	方法偵測 極限値	结果 (Result)
(Test Items)	(Unit)	(Method)	(MDL)	No.1
稿 / Cadmium (Cd)	mg/kg	参考IEC 62321: 2008方法, 以感應耦合 電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
鉛 / Lead (Pb)	mg/kg	參考IEC 62321: 2008方法, 以感應耦合 電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
乘 / Mercury (Hg)	mg/kg	參考IEC 62321: 2008方法, 以感應耦合 電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
法检测. / W 62321: 2008 Boiling wat		参考IEC 62321: 2008方法,以沸水萃取 法檢測. / With reference to IEC 62321: 2008 and performed by Boiling water extraction Method.#	#	Negative
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	參考US EPA 3550C: 2007方法, 以液相層析/質譜儀檢測. / With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.
全氣辛酸(銨) / PFOA (CAS No.: 335-67- 1)	mg/kg	参考US EPA 3550C: 2007方法, 以液相唇析/質譜儀檢測. / With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.



測試報告

Test Report

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测試項目 (Test Items)	單位			結果 (Result)
	(Unit)	(Unit) (Method)	(MDL)	No.1
鹵素 / Halogen				
鹵素 (氣) / Halogen-Fluorine (F) (CAS No.: 14762-94-8)			50	n.d.
鹵素(氣)/ Halogen-Chlorine (C1) (CAS No.: 22537-15-1)		參考BS EN 14582:2007, 以離子層析儀 分析. / With reference to BS EN	50	n.d.
鹵素 (溴) / Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg	14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8)			50	n.d.

備註(Note):

- 1. mg/kg = ppm; 0.1wt% = 1000ppm
- 2. n.d. = Not Detected (未检出)
- 3. MDL = Method Detection Limit (方法偵測極限值)
- 4. "-" = Not Regulated (無規格值)
- 5. **= Qualitative analysis (No Unit) 定性分析(無單位)
- 6. # = a. Positive means the presence of CrVI on the tested areas

(Positive表示測試區域偵測到六價路)

b. Negative means the absence of CrVI on the tested areas

(Negative表示測試區域未偵測到六價鉻)

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² tested areas. / 該溶液濃度≧0.02 mg/kg with 50 cm² (tested areas)

7. 樣品的測試是基於申請人要求混合測試,報告中的混合測試結果不代表其中個别單一材質的含量。(The samples was/were analyzed on behalf of the applicant as mixing sample in one testing. The above results was/were only given as the informality value.)

33. Wu Chuan Rd., New Taipei Industrial Park, New Taipei City, Taiwan / 和工程之中是美国大陆的33组



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PFOS参考資訊(Reference Information): 持久性有機污染物 POPs - (EU) 757/2010

PFOS濃度在物質或製備中不得超過0.001%(10ppm),在半成品、成品或零部件中不得超過0.1%(1000ppm),在紡織品或 塗層材料中不得超過1µg/m2。

(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 lug/m2.)



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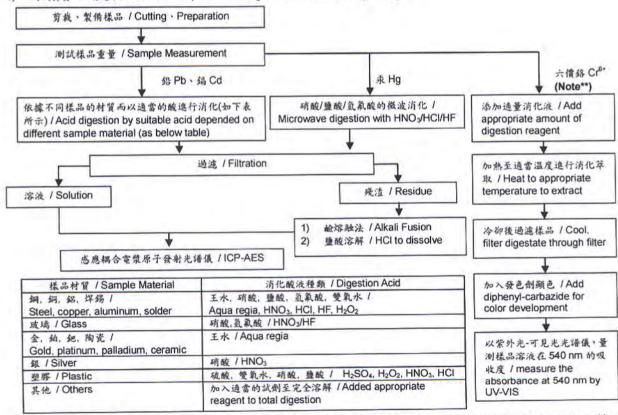
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PROPERTY OF A 1 TO A 100 MINE THE REAL PROPERTY OF A 100 MINE TYPE AND A 100 MINE TYPE

- 根據以下的流程圖之條件,樣品已完全溶解。(六價絡測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr6+ test method excluded)
- 测试人员:楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 测试负责人: 張啓興 / Name of the person in charge of measurement: Troy Chang



Note**: (1) 針對非金屬材料加入鹼性消化液,加熱至 90~95℃萃取. / For non-metallic material, add alkaline digestion reagent and heat to 90~95°C

(2) 針對金屬材料加入純水,加熱至沸騰萃取. / For metallic material, add pure water and heat to boiling.

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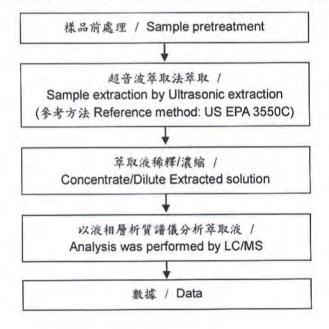
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全氟辛酸(銨)/全氟辛烷磺酸分析流程圖 / PFOA/PFOS analytical flow chart

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



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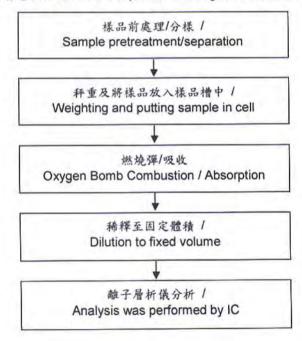
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鹵素分析流程圖 / Analytical flow chart of halogen content

- 1) 测试人员: 陳恩臻 / Name of the person who made measurement: Rita Chen
- 2) 測試負責人: 張啓興 / Name of the person in charge of measurement: Troy Chang





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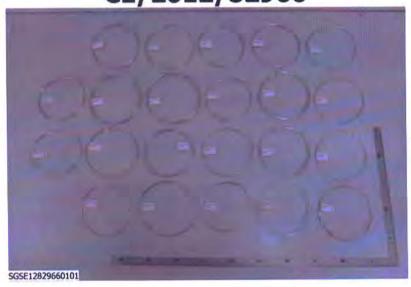
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* 照片中如有箭頭標示,則表示爲實際檢測之樣品/部位. *
(The tested sample / part is marked by an arrow if it's shown on the photo.)

CE/2012/82966



** 報告結尾 (End of Report) **



Report No. RLSZE001200320001

Page 1 of 6

Applicant DONGGUAN DAEJOO ELECTRONIC MATERIALS CO.,LTD.

Address XIANCONG INDUSTRIAL ZONE WANJIANG DIATRICT DONGGUAN

GUANGDONG CHINA

Report on the submitted sample(s) said to be

Sample Name CP-930-1 HF
Sample Description Red solid
Sample Received Date Mar. 9, 2012

Testing Period Mar. 9, 2012 to Mar. 13, 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), Three Phthalates (DBP,BBP,DEHP), Fluorine(F), Chlorine(Cl), Bromine(Br), Iodine(I) in the submitted sample(s).

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

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

Tested by

Approved by

Inspected by

Date

vo. g

Mar. 13, 2012

No. 11363070

Technical Manager



Report No. RLSZE001200320001

Page 2 of 6

Test Method

Test Item(s)	Test Method	Measured Equipment(s)	MDL
Hexabromocyclododecane(HBCDD)	Refer to US EPA 3540C:1996	GC-MS	5 mg/kg
Three Phthalates (DBP,BBP,DEHP)	Refer to EN 14372:2004	GC-MS	50 mg/kg
Lead(Pb)	IEC 62321:2008 Ed.1 Sec.10	ICP-OES	2 mg/kg
Cadmium(Cd)	IEC 62321:2008 Ed.1 Sec.10	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 C	UV-Vis	2 mg/kg
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
Fluorine(F)	Refer to BS EN 14582:2007	IC	10 mg/kg
Chlorine(Cl)	Refer to BS EN 14582:2007	IC	10 mg/kg
Bromine(Br)	Refer to BS EN 14582:2007	IC	10 mg/kg
Iodine(I)	Refer to BS EN 14582:2007	IC	10 mg/kg

Test Result(s)

Tested Item(s)	Content
Hexabromocyclododecane (HBCDD)	N.D.

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

Tested Item(s)	Content
Polybrominated Biphenyls(PBBs)	
Monobromobiphenyl	N.D.
Dibromobiphenyl	N.D.
Tribromobiphenyl	N.D.
Tetrabromobiphenyl	N.D.
Pentabromobiphenyl	N.D.
Hexabromobiphenyl	N.D.
Heptabromobiphenyl	N.D.
Octabromobiphenyl	N.D.
Nonabromobiphenyl	N.D.
Decabromobiphenyl	N.D.



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Tested Item(s)	Content
Polybrominated Diphenyl Ethers(PBDEs)	Content
Monobromodiphenyl ether	N.D.
Dibromodiphenyl ether	N.D.
Tribromodiphenyl ether	N.D.
Tetrabromodiphenyl ether	N.D.
Pentabromodiphenyl ether	N.D.
Hexabromodiphenyl ether	N.D.
Heptabromodiphenyl ether	N.D.
Octabromodiphenyl ether	N.D.
Nonabromodiphenyl ether	N.D.
Decabromodiphenyl ether	N.D.

Tested Item(s)	Content	
Halogen(s)		
Fluorine (F)	N.D.	
Chlorine (Cl)	195 mg/kg	
Bromine (Br)	N.D.	
Iodine (I)	N.D.	

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

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

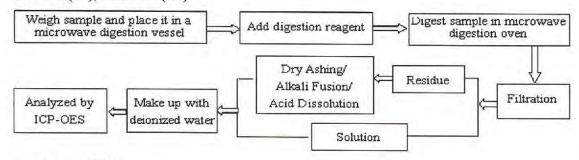


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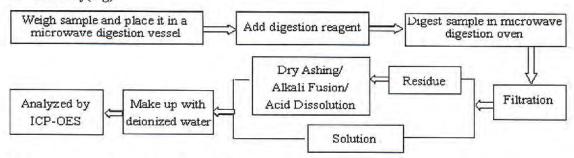
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Test Process

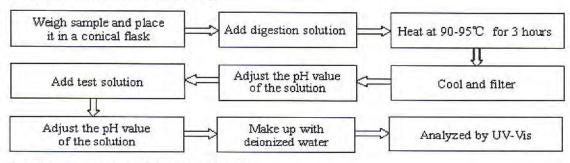
1. Lead(Pb), Cadmium(Cd)



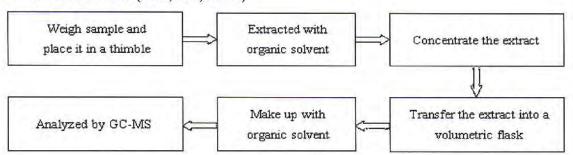
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))



4. Three Phthalates (DBP,BBP,DEHP)

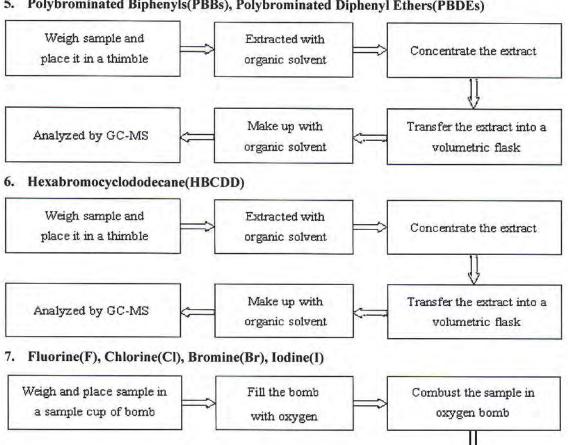


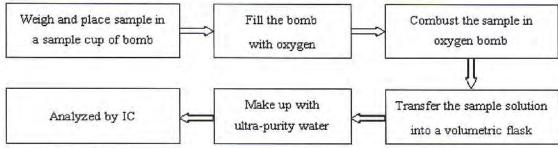


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5. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs)







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Photo(s) of the sample(s)



*** End of report ***

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Building C, Hongwei Industrial Zone, Baoan 70 District, Shenzhen

