

ICP Test Report Certification Packet

Company name:	Littelfuse, Inc.			
Product Series:	Maxi Slo-Blo Blade Fuse			
Product #:	999 Series			
Issue Date:	March 8, 2013			
It is hereby certified by Littelfuse, Inc. that there is neither RoHS (EU Directive 2002/95/EC, 2011/65/EU)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes. In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.				
	Issued by: KRISTEEN BACILA			
(A) 5	<global ehs="" engineer=""></global>			
(1) Parts, sub-materials	·			
	vers the Maxi Slo-Blo Blade Fuse Series RoHS-Compliant series ured by Littelfuse, Inc.			
< Raw Materials U				
(2) The ICP data on all	measurable substances propriate pages as identifed in Table 1			
D				
Remarks:				



Table 1: List of Raw Materials covered by this report

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	057357	Base of Housing 999000-503	3-12
2	057884	Colorant of Housing 999000-503	13-22
3	425484	Foil	23-31
4	955410	Zinc Element	33-37
5	692536	Solder	38-43



Test Report Number: TWNC00299229

Date : Feb 25, 2013 Applicant: Littelfuse, S.A. de C.V.

> Blvd. Fausto Z. Martinez #1800 Col. Magisterio Seccion 38 C.P.

26070 Piedra Negras, Coahuila, Mexico

Sample Description:

One (1) group of submitted samples said to be : Part Description : VYDYNE 21SP-C Nylon

Part Number : 057357

Date Sample Received : Feb 19, 2013 Date Test Started : Feb 19, 2013

Test Conducted :

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

Authorized by: On Behalf of Intertek Testing Services Taiwan Limited



K. Y. Liang Director





Test Conducted

(I) Test Result Summary:

Test Item	<u>Unit</u>	Test Method	Result Semitransparent plastic pellets	RL
Heavy Metal		T-7-1-1.	T	
Cadmium (Cd) Content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	2
Lead (Pb) Content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	2
Mercury (Hg) Content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	2
Chromium VI (Cr ⁶⁺) Content	ppm	With reference to IEC 62321: 2008, by alkaline digestion and determined by UV-Vis Spectrophotometer.	ND	1





Test Conducted

			Result	
Test Item	Unit	Test Method		DT.
TESC ICEIII	OIIIC	Test Method	Semitransparent	<u>RL</u>
			plastic pellets	
Polybrominated Biphenyls (PBBs)	Т	I	l I	
Monobrominated Biphenyls	ppm		ND	5
(MonoBB)		4		
Dibrominated Biphenyls	ppm		ND	5
(DiBB)		4		
Tribrominated Biphenyls	ppm		ND	5
(TriBB)		With reference to		
Tetrabrominated Biphenyls (TetraBB)	ppm	IEC 62321: 2008,	ND	5
		by solvent		
Pentabrominated Biphenyls (PentaBB)	ppm	extraction and	ND	5
Hexabrominated Biphenyls	-	determined by GC-		
(HexaBB)	ppm	MS and further	ND	5
Heptabrominated Biphenyls		HPLC-DAD		
(HeptaBB)	ppm	confirmation when	ND	5
Octabrominated Biphenyls		necessary.		
(OctaBB)	ppm		ND	5
Nonabrominated Biphenyls		1		
(NonaBB)	ppm		ND	5
Decabrominated Biphenyl		1		
(DecaBB)	ppm		ND	5
Polybrominated Diphenyl Ethers	(PBDEs)			
Monobrominated Diphenyl Ethers			177	
(MonoBDE)	ppm		ND	5
Dibrominated Diphenyl Ethers		1	1770	_
(DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers	2222]	ND	5
(TriBDE)	ppm	With metamones to	ND	5
Tetrabrominated Diphenyl	ppm	With reference to IEC 62321: 2008,	ND	5
Ethers (TetraBDE)	PPIII	by solvent	1417	J
Pentabrominated Diphenyl	ppm	extraction and	ND	5
Ethers (PentaBDE)	22111	determined by GC-	140)
Hexabrominated Diphenyl Ethers	ppm	MS and further	ND	5
(HexaBDE)	PP'''	HPLC-DAD	110	<u> </u>
Heptabrominated Diphenyl	ppm	confirmation when	ND	5
Ethers (HeptaBDE)	Lr	necessary.		~
Octabrominated Diphenyl Ethers	ppm	_	ND	5
(OctaBDE)	1.5		_	-
Nonabrominated Diphenyl Ethers	ppm		ND	5
(NonaBDE)	1.1.	-	_	
Decabrominated Diphenyl Ether	ppm		ND	5
(DecaBDE)	1 12		_	=-





Test Conducted

Test Item	<u>Unit</u>	Test Method	Result Semitransparent plastic pellets	RL
Phthalates				
Di(2-ethylhexyl) Phthalate (DEHP)	ppm	With reference to EN 14372: 2004, by	ND	50
Dibutyl Phthalate (DBP)	ppm	solvent extraction	ND	50
Benzyl Butyl Phthalate (BBP)	mqq	and determined by GC-MS.	ND	50
Halogen Content				
Fluorine (F)	ppm	With reference to	ND	50
Chlorine (Cl)	ppm	EN 14582:2007 by	ND	50
Bromine (Br)	ppm	calorimetric bomb with oxygen and	ND	50
Iodine (I)	ppm	determined by Ion Chromatograph.	ND	50
Others				
Hexabromo cyclododecane (HBCDD)	ppm	With reference to USEPA 3540C, by solvent extraction and determined by GC-MS.	ND	10

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

ND = Not detected

= Reporting Limit, Quantitation limit of analyte in sample

Responsibility of Chemist: Kevin Liu/ Irene Chiou/ Vico Lin

Date Sample Received : Feb 19, 2013

: Feb 19, 2013 to Feb 21, 2013 Test Period

RoHS Limit

Restricted Substances	<u>Limits</u>
Cadmium (Cd) content	0.01% (100ppm)
Lead (Pb) content	0.1% (1000ppm)
Mercury (Hg) content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ehters (PBDEs)	0.1% (1000ppm)

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.

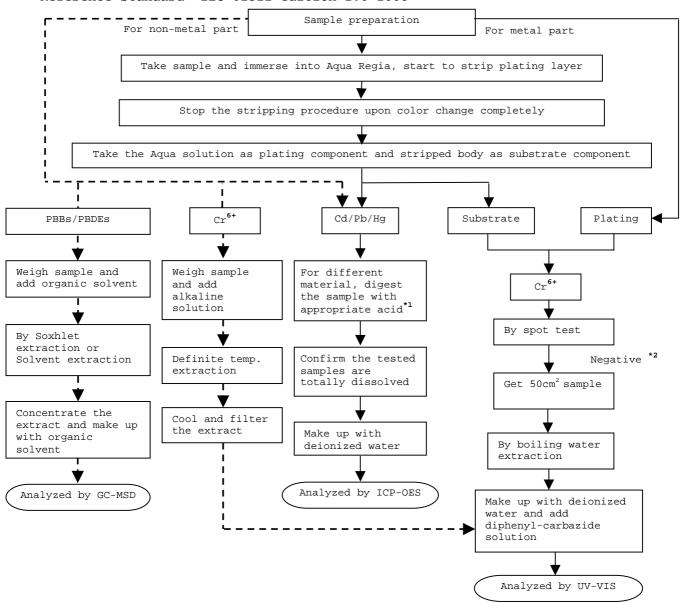




Test Conducted

(IV) Measurement Flowchart:

Test for Cd/Pb/Hg/Chromium (VI)/PBBS/PBDES Contents Reference Standard: IEC 62321 edition 1.0:2008





Intertek Testing Services Taiwan Ltd.



Test Conducted

Remarks:

*1: List of Appropriate Acid:

<u>Material</u>	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

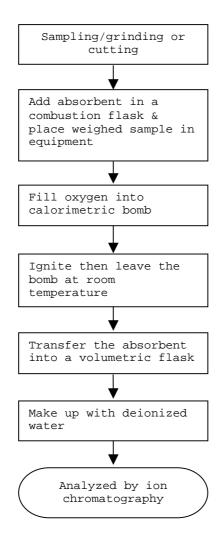
*2: If the result of spot test is positive, Chromium VI would be determined as detected.





Test Conducted

Test for Halogen Content Reference Standard: EN 14582

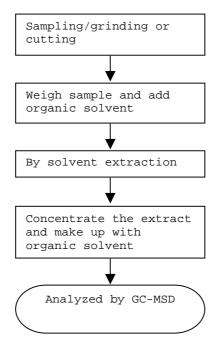






Test Conducted

Test For Phthalates Contents Reference Method: EN 14372: 2004

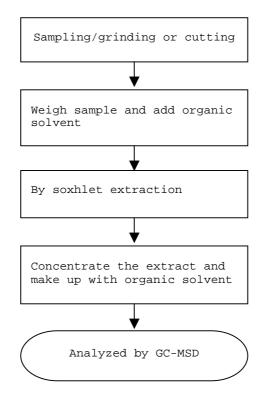






Test Conducted

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



End of Report

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Number : TWNC00299229
Test Conducted

<u>Photo</u>









Test Report Number: TWNC00299232

Date : Feb 25, 2013 Applicant: Littelfuse, S.A. de C.V.

> Blvd. Fausto Z. Martinez #1800 Col. Magisterio Seccion 38 C.P.

26070 Piedra Negras, Coahuila, Mexico

Sample Description:

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

Part Description : COLOR CONCENTRATE ORANGE

: 057884 Part Number

Date Sample Received : Feb 19, 2013 Date Test Started : Feb 19, 2013

Test Conducted :

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

Authorized by: On Behalf of Intertek Testing Services Taiwan Limited



K. Y. Liang Director





Test Conducted

(I) Test Result Summary:

(I) lest Result Summary.				
Test Item	Unit	Test Method	Result Dark orange plastic pellets	RL
Heavy Metal	.	1	Į.	
Cadmium (Cd) Content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	2
Lead (Pb) Content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	2
Mercury (Hg) Content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	2
Chromium VI (Cr ⁶⁺) Content	ppm	With reference to IEC 62321: 2008, by alkaline digestion and determined by UV-Vis Spectrophotometer.	ND	1
Polybrominated Biphenyls (PBBs)			
Monobrominated Biphenyls (MonoBB)	ppm		ND	5
Dibrominated Biphenyls (DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	ppm		ND	5
Tetrabrominated Biphenyls (TetraBB)	ppm	With reference to IEC 62321: 2008, by solvent	ND	5
Pentabrominated Biphenyls (PentaBB)	ppm	extraction and determined by GC-MS and	ND	5
Hexabrominated Biphenyls (HexaBB)	ppm	further HPLC-DAD confirmation when necessary.	ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm		ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5





Test Conducted

	1	1		
			<u>Result</u>	
Test Item	Unit	Test Method	Dark orange	RL
1050 100m	01110	rese riceilou	plastic	КП
			pellets	
Polybrominated Diphenyl Ethers	(PBDEs)			
Monobrominated Diphenyl Ethers	nnm		ND	5
(MonoBDE)	ppm		ND	5
Dibrominated Diphenyl Ethers	ppm		ND	5
(DiBDE)	Ppiii		ND	
Tribrominated Diphenyl Ethers	ppm		ND	5
(TriBDE)	PP		11.5	
Tetrabrominated Diphenyl	ppm	With reference to IEC	ND	5
Ethers (TetraBDE)	PP	62321: 2008, by solvent		
Pentabrominated Diphenyl	ppm	extraction and	ND	5
Ethers (PentaBDE)		determined by GC-MS and		
Hexabrominated Diphenyl Ethers	ppm	further HPLC-DAD	ND	5
(HexaBDE) Heptabrominated Diphenyl		confirmation when		
Ethers (HeptaBDE)	ppm	necessary.	ND	5
Octabrominated Diphenyl Ethers		-		
(Octablominated Diphenyl Ethers	ppm		ND	5
Nonabrominated Diphenyl Ethers				
(NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether		1		
(DecaBDE)	ppm		ND	5
Phthalates	I.		1	
Di(2-ethylhexyl) Phthalate		With reference to EN	NID	Ε0
(DEHP)	ppm	14372: 2004, by solvent	ND	50
Dibutyl Phthalate (DBP)	ppm	extraction and	ND	50
Benzyl Butyl Phthalate (BBP)	ppm	determined by GC-MS.	ND	50
Halogen Content	1			
Fluorine (F)	ppm	With reference to EN	ND	50
Chlorine (Cl)	ppm	14582:2007 by calorimetric bomb with oxygen and determined	3595	50
Bromine (Br)	ppm		ND	50
Iodine (I)	ppm	by Ion Chromatograph.	ND	50
Others		1 2	I.	
		With reference to USEPA		
Hexabromo cyclododecane		3540C, by solvent	NID	1.0
(HBCDD)	ppili	extraction and	ND	10
,		determined by GC-MS.		





Test Conducted

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

ND = Not detected

RL = Reporting Limit, Quantitation limit of analyte in sample

Responsibility of Chemist: Kevin Liu/ Irene Chiou/ Vico Lin

Date Sample Received : Feb 19, 2013

: Feb 19, 2013 to Feb 21, 2013 Test Period

(Ⅱ) Limit: RoHS Limit

Restricted Substances	<u>Limits</u>
Cadmium (Cd) content	0.01% (100ppm)
Lead (Pb) content	0.1% (1000ppm)
Mercury (Hg) content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ehters (PBDEs)	0.1% (1000ppm)

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.

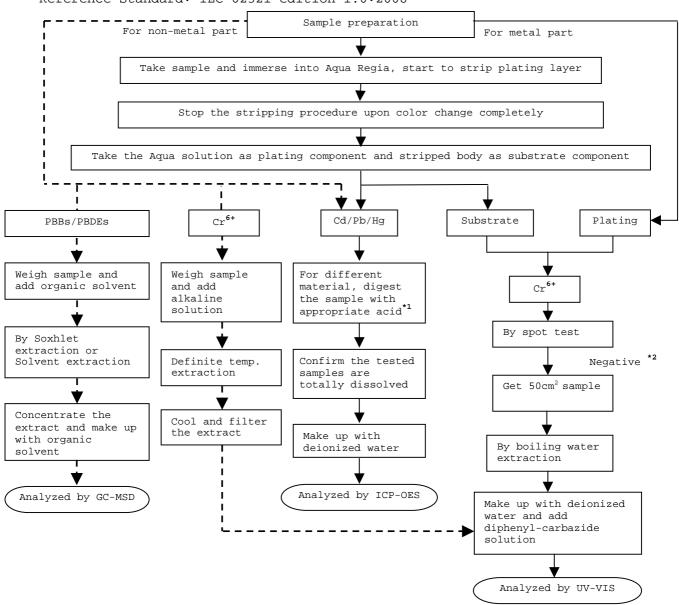




Test Conducted

(IV) Measurement Flowchart:

Test for Cd/Pb/Hg/Chromium (VI)/PBBS/PBDES Contents Reference Standard: IEC 62321 edition 1.0:2008





Intertek Testing Services Taiwan Ltd.



Test Conducted

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

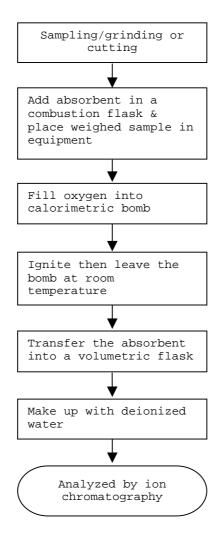
*2: If the result of spot test is positive, Chromium VI would be determined as detected.





Test Conducted

Test for Halogen Content Reference Standard: EN 14582

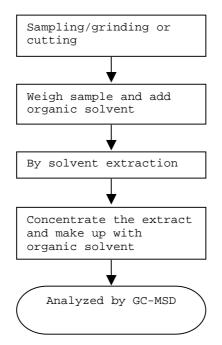






Test Conducted

Test For Phthalates Contents Reference Method: EN 14372: 2004

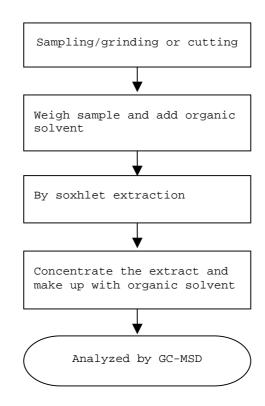






Test Conducted

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



End of Report

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Test Conducted

Photo







Intertek Testing Services Taiwan Ltd.



Test Report Number: TWNC00273470

Applicant: Littelfuse, S.A. de C.V.

Blvd. Fausto Z. Martinez #1800 Col. Magisterio Seccion 38 C.P. 26070 Piedra Negras, Coahuila,

Mexico

Sample Description:

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

Part Description : FOIL, WHITE

Part Number : 425484

Date Sample Received : Aug 28, 2012 Date Test Started : Aug 28, 2012

Test Conducted :

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

Authorized By: On Behalf Of Intertek Testing Services Taiwan Limited



K. Y. Liang
Director

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Date : Sep 03, 2012

Page 1 of 9



Test Conducted

(I) Test Result Summary :

Togt Itom	Result (ppm)
<u>Test Item</u>	White Foil
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr ⁶⁺) content	ND
Polybrominated Biphenyls (PBBs)	
Monobrominated Biphenyls (MonoBB)	ND
Dibrominated Biphenyls (DiBB)	ND
Tribrominated Biphenyls (TriBB)	ND
Tetrabrominated Biphenyls (TetraBB)	ND
Pentabrominated Biphenyls (PentaBB)	ND
Hexabrominated Biphenyls (HexaBB)	ND
Heptabrominated Biphenyls (HeptaBB)	ND
Octabrominated Biphenyls (OctaBB)	ND
Nonabrominated Biphenyls (NonaBB)	ND
Decabrominated Biphenyl (DecaBB)	ND
Polybrominated Diphenyl Ethers (PBDEs)	·
Monobrominated Diphenyl Ethers (MonoBDE)	ND
Dibrominated Diphenyl Ethers (DiBDE)	ND
Tribrominated Diphenyl Ethers (TriBDE)	ND
Tetrabrominated Diphenyl Ethers (TetraBDE)	ND
Pentabrominated Diphenyl Ethers (PentaBDE)	ND
Hexabrominated Diphenyl Ethers (HexaBDE)	ND
Heptabrominated Diphenyl Ethers (HeptaBDE)	ND
Octabrominated Diphenyl Ethers (OctaBDE)	ND
Nonabrominated Diphenyl Ethers (NonaBDE)	ND
Decabrominated Diphenyl Ether (DecaBDE)	ND
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	12176
Bromine (Br)	ND
Iodine (I)	ND



Test Conducted

(I) Test Result Summary :

Test Item	Result (ppm)
	White Foil
Phthalates	
Di(2-ethylhexyl) Phthalate (DEHP)	ND
Dibutyl Phthalate (DBP)	ND
Benzyl Butyl Phthalate (BBP)	ND
Others	
Hexabromocyclododecane (HBCDD)	ND

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

ND = Not detected

Responsibility of Chemist : Irene Chiou / Kevin Liu / Cathy Chen

Date Sample Received : Aug 28, 2012

Test Period : Aug 28, 2012 To Aug 31, 2012

(Ⅱ) RoHS Limits:

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

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.



Test Conducted

(Ⅲ) Test Method:

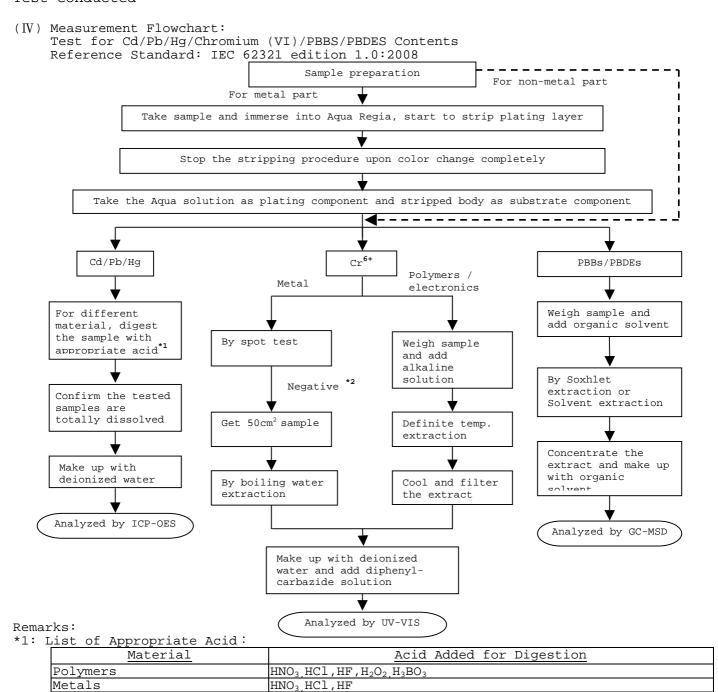
) Test Method:		
Test Item	Test Method	Reporting Limit
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Mercury (Hg) content	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Chromium VI (Cr ⁶⁺) content	With reference to IEC 62321 edition 1.0:2008 in annex C, by alkaline digestion and determined by UV-Vis spectrophotometer.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	5 ppm
Halogen Content	With reference to EN 14582:2007 by calorimetric bomb with oxygen and determined by Ion Chromatograph.	50 ppm
Phthalates	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	50 ppm
Hexabromocyclododec ane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

Remark: Reporting limit = Quantitation limit of analyte in sample



Test Conducted

Electronics



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

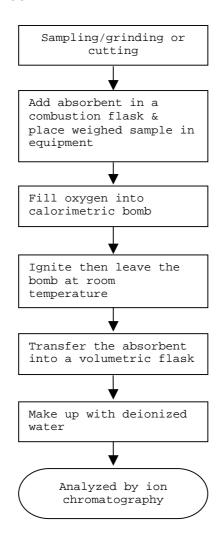
HNO3, HCl, H2O2, HBF4



Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582

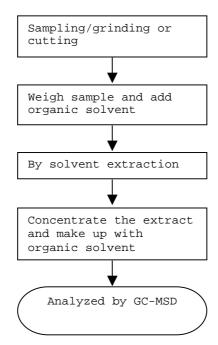




Test Conducted

$(\, { m I\hspace{-.1em}V} \,)$ Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004

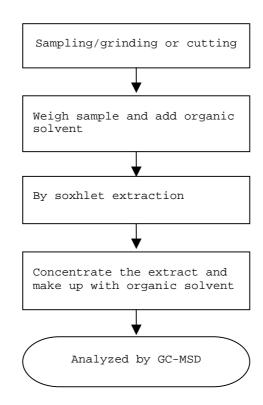




Test Conducted

(IV) Measurement Flowchart:

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



End of Report

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Test Conducted

Photo







Test Report Number: TWNC00281444

Applicant: Littelfuse, S.A. de C.V.

Blvd. Fausto Z. Martinez #1800 Col. Magisterio Seccion 38 C.P.

26070 Piedra Negras, Coahuila, Mexico

Sample Description:

One (1) group of submitted samples said to be :
Part Description : COPPER HARDENED ZINC

Part Number : 955410

Date Sample Received : Oct 16, 2012
Date Test Started : Oct 17, 2012

Test Conducted :

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

Authorized By:
On Behalf Of Intertek Testing Services
Taiwan Limited



K. Y. Liang
Director

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Date : Oct 23, 2012





Test Conducted

(I) Test Result Summary :

Test Item	Result (ppm) Silvery Metal
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	17
Mercury (Hg) content	ND
Chromium VI (Cr^{6+}) content $(mg/kg with 50cm^2)$	Negative (< 0.02)

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

ND = Not detected = Less than

mg/kg with 50cm² = milligram per kilogram with 50 square centimetre Negative = A negative test result indicated positive observation was not found at the time of Test.

Responsibility of Chemist : Irene Chiou / Kevin Liu

Date Sample Received : Oct 16, 2012

Test Period : Oct 17, 2012 To Oct 23, 2012

(Ⅱ) RoHS Limits:

Restricted Substances	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.





Test Conducted

(Ⅲ) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample



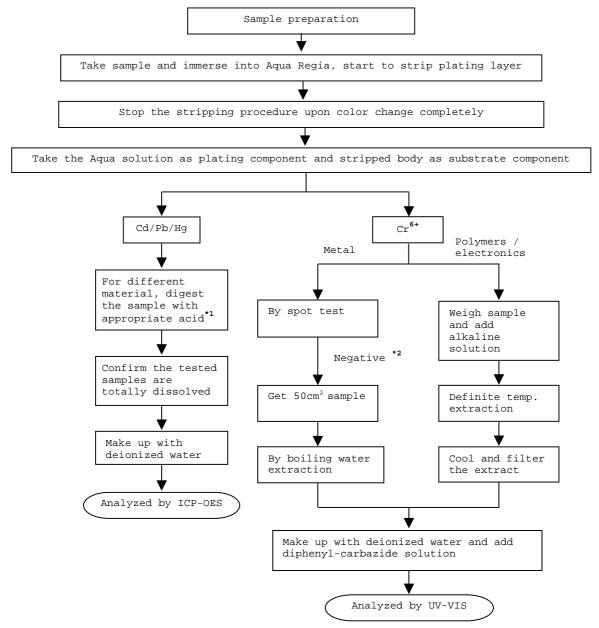


Test Conducted

(IV) Measurement Flowchart:

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

Reference Standard: IEC 62321 edition 1.0:2008





Intertek Testing Services Taiwan Ltd.



Test Conducted

Remarks:

*1: List of Appropriate Acid:

erso or instructional	
<u>Material</u>	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.

End of Report

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





Test Conducted

Photo







Intertek Testing Services Taiwan Ltd.



Test Report Number: TWNC00281433

Applicant: Littelfuse, S.A. de C.V.

Blvd. Fausto Z. Martinez #1800 Col. Magisterio Seccion 38 C.P.

26070 Piedra Negras, Coahuila, Mexico

Sample Description:

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

Part Description : SOLID CORE SOLDER .062" DIAMETER

Part Number : 692536

Date Sample Received : Oct 16, 2012 Date Test Started : Oct 18, 2012

Test Conducted:

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

Authorized By:
On Behalf Of Intertek Testing Services
Taiwan Limited



K. Y. Liang
Director

This report shall not be reproduced except in full, without the written approval of the laboratory.

Date : Oct 24, 2012





Test Conducted

(I) Test Result Summary :

Test Item	Result (ppm) Silvery Metal
Heavy Metal	
Cadmium (Cd) content	5
Lead (Pb) content	189
Mercury (Hg) content	ND
Chromium VI (Cr ⁶⁺) content (mg/kg with 50cm ²)	Negative (<0.02)

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

ND = Not detected = Less than

Negative = A negative test result indicated positive observation

was not found at the time of Test.

Responsibility of Chemist : Irene Chiou / Kevin Liu

Date Sample Received : Oct 16, 2012

Test Period : Oct 18, 2012 To Oct 24, 2012

(Π) RoHS Limits:

Restricted Substances	<u>Limits</u>
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) Content	0.1% (1000ppm)

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.





Test Conducted

(Ⅲ) Test Method:

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

Remark: Reporting limit = Quantitation limit of analyte in sample



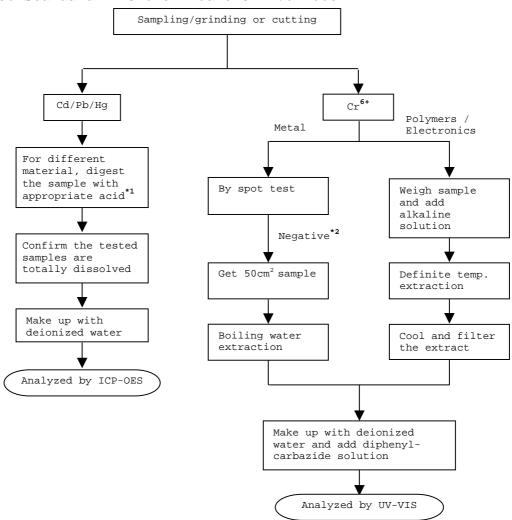


Test Conducted

(IV) Measurement Flowchart:

Test For Cd/Pb/Hg/Chromium (VI)

Reference Standard: IEC 62321 edition 1.0:2008







Test Conducted

Remarks:

*1: List Of Appropriate Acid:

<u>Material</u>	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.

End of Report

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Test Conducted

Photo







Intertek Testing Services Taiwan Ltd.