

ICP Test Report Certification Packet

Company name: Littelfuse, Inc.

Product Series: ATOF

Product #: 287xxx Series

Issue Date: September 24, 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:

JORDANUFF H. CABILAN

<Global EHS Engineer>

(1) Parts, sub-materials and unit parts

This document covers the ATOF series RoHS-Compliant series products manufactured by Littelfuse, Inc.

< Raw Materials Used Please see Table 1

(2) The ICP data on all measurable substances

Please see appropriate pages as identifed in Table 1

Remarks:

Non-HF contains Chlorine (Cl) in white foil & orange colorant.



Table 1: List of Raw Materials covered by this report

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	057357	Molding Resin	3-12
2	955412-001	Plated Zinc Strip	13-18
3	425498	White Foil	19-27
4	057874	Colorant- Gray	28-37
5	057875	Colorant- Violet	38-47
6	057876	Colorant- Pink	48-57
7	057878	Colorant- Brown	58-67
8	057879	Colorant- Red	68-77
9	057880	Colorant- Blue	78-87
10	057877	Colorant- Tan	88-97
11	057883	Colorant- Green	98-106
12	057884	Colorant- Orange	107-116
13	057899	Colorant- Yellow	117-126



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.

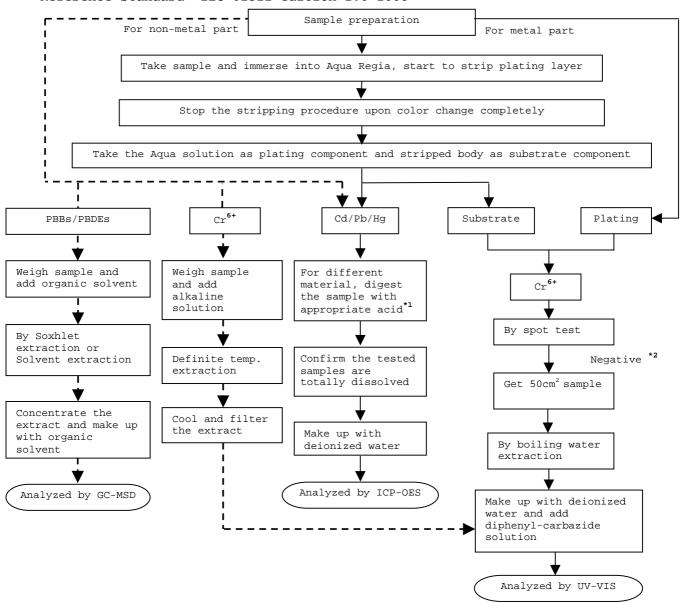




Test Conducted

(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

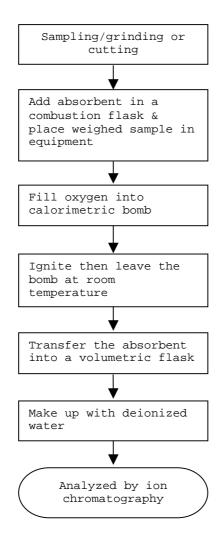
*2: If the result of spot test is positive, Chromium VI would be determined as detected.





Test Conducted

Test for Halogen Content Reference Standard: EN 14582

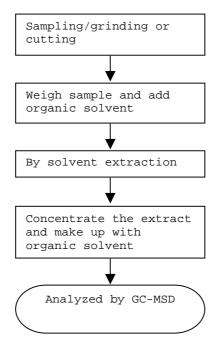






Test Conducted

Test For Phthalates Contents Reference Method: EN 14372: 2004

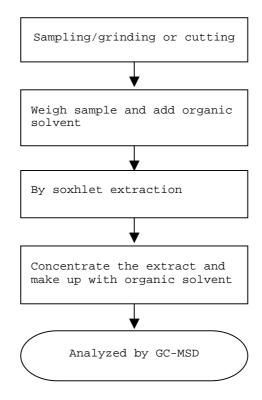






Test Conducted

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



End of Report

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Number : TWNC00299229
Test Conducted

<u>Photo</u>









Number: TWNC00277407 Test Report

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

> 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 : ATO SKIVED ZINC STRIPS

Part Number : 955412-XXX:

> 955412-113 955412-111 955412-112 955412-101 955412-106 955412-107 955412-105

955412-103 955412-109 955412-102 955412-104 955412-108 955412-110

: Sep 20, 2012 Date Sample Received : Sep 20, 2012 Date Test Started

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



Date : Nov 12, 2012



Test Conducted

(I) Test Result Summary :

Togt Itom	Result (ppm)	
Test Item	(1)	(2)
Heavy Metal		
Cadmium (Cd) content	6	ND
Lead (Pb) content	38	ND
Mercury (Hg) content	ND	ND
Chromium VI (Cr^{6+}) content (mg/kg with $50cm^2$)	Negative (< 0.02)(#)	Negative (< 0.02)(#)

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

ND = Not detected
< = Less than</pre>

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.

= Due to the insufficient sample area, reduced total sample surface of 10 cm² was used and the dilution factor was adjusted accordingly.

Tested Components

- (1) Gray Metal Base Material
- (2) Silvery Plating Layer

Responsibility of Chemist : Irene Chiou / Kevin Liu

Date Sample Received : Sep 20, 2012

Test Period : Nov 08, 2012 To Nov 12, 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 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



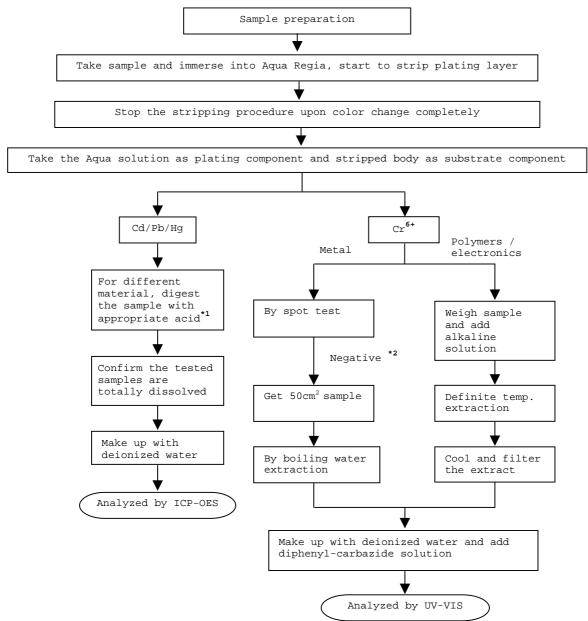


Test Conducted

(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

(IV) Measurement Flowchart:

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.

End of Report

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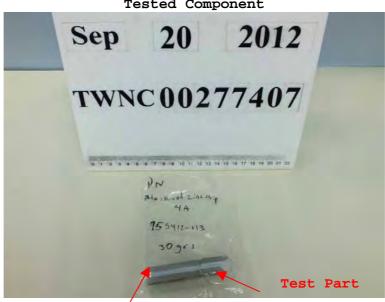
Test Conducted

Photo

Submitted Sample



Tested Component



Test Part



Intertek Testing Services Taiwan Ltd.

8F., No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan, R.O.C. 全國公證檢驗股份有限公司



Test Report Number: TWNC00281437

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 : TAPE WHITE FOIL

Part Number : 425498

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 Result Summary .	Result (ppm)
Test Item	White Plastic Film
Heavy Metal	MILLOU FIABLIC FILM
-	1 225
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
olybrominated Diphenyl Ethers (PBDEs)	<u> </u>
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)	12260
Bromine (Br)	ND
Iodine (I)	ND





Test Conducted

(I) Test Result Summary :

Most Thom	Result (ppm)
Test Item	White Plastic Film
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 : Oct 16, 2012

Test Period : Oct 17, 2012 To Oct 22, 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)
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 (\coprod) 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



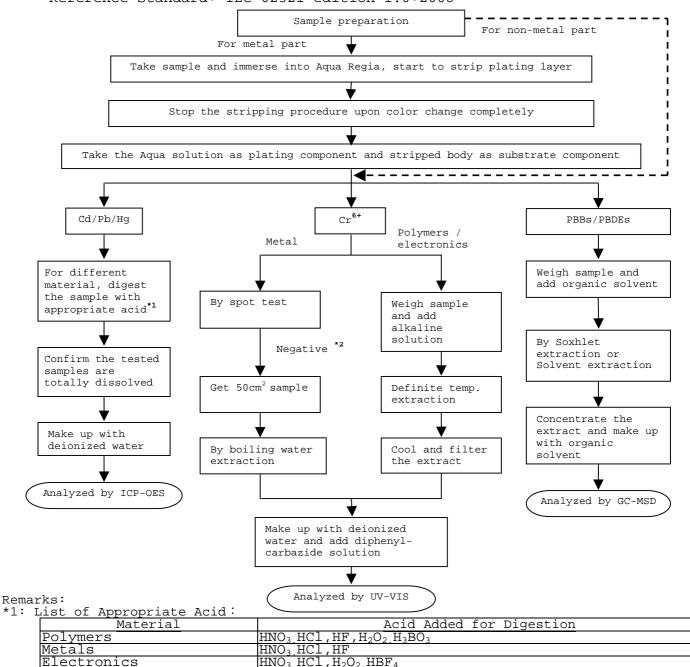


Test Conducted

(IV) Measurement Flowchart:

Electronics

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



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



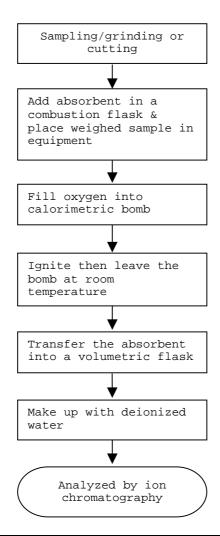
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Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582



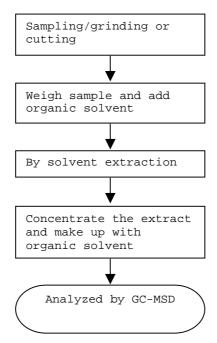




Test Conducted

 $({
m I\!V})$ Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004



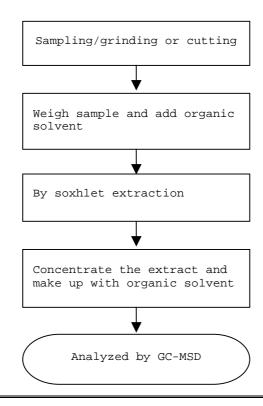




Test Conducted

(N) Measurement Flowchart:

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



End of Report

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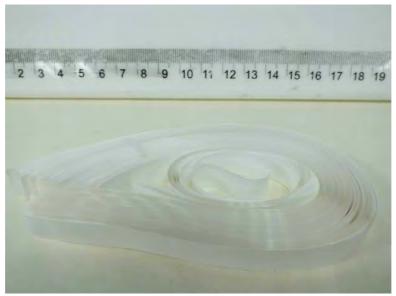


Test Conducted

Number : TWNC00281437

Photo









Test Report Number: TWNC00299230

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 gray

Part Number : 057874

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



Date : Feb 25, 2013



Test Conducted

(I) Test Result Summary:

(1) Test Result Summary.				
Test Item	<u>Unit</u>	Test Method	Result Dark gray plastic pellets	RL_
Heavy Metal	•	-		l.
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	ND	5
Pentabrominated Biphenyls (PentaBB)	ppm	62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Hexabrominated Biphenyls (HexaBB)	ppm		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

	I	1		
<u>Test Item</u>	<u>Unit</u>	<u>Test Method</u>	Result Dark gray plastic pellets	RL
Polybrominated Diphenyl Ethers	(PBDEs)			
Monobrominated Diphenyl Ethers (MonoBDE)	ppm		ND	5
Dibrominated Diphenyl Ethers (DiBDE)	mqq	With reference to IEC 62321: 2008, by solvent extraction and	ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm		ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	mqq		ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	mqq	determined by GC-MS and further HPLC-DAD confirmation when	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm	necessary.	ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Phthalates				
Di(2-ethylhexyl) Phthalate (DEHP)	ppm	With reference to EN 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				
Fluorine (F)	ppm	With reference to EN	ND	50
Chlorine (Cl)	ppm	14582:2007 by calorimetric bomb with oxygen and determined by Ion Chromatograph.	ND	50
Bromine (Br)	ppm		ND	50
Iodine (I)	ppm		ND	50
Others	1			
Hexabromo cyclododecane (HBCDD)	ppm	With reference to USEPA 3540C, by solvent extraction and determined by GC-MS.	ND	10





Test Conducted

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

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.

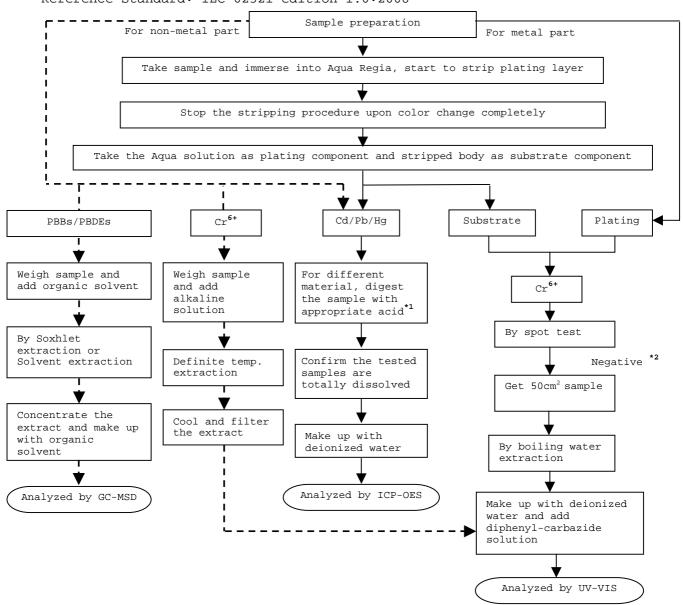




Test Conducted

(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

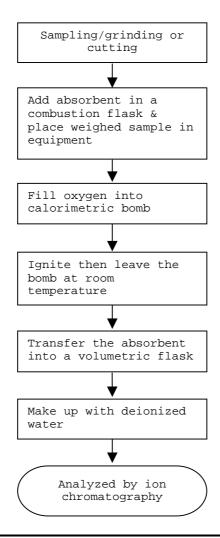
*2: If the result of spot test is positive, Chromium VI would be determined as detected.





Test Conducted

Test for Halogen Content Reference Standard: EN 14582

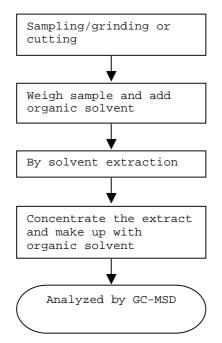






Test Conducted

Test For Phthalates Contents Reference Method: EN 14372: 2004

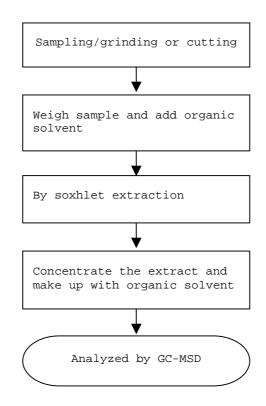






Test Conducted

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



End of Report

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Number : TWNC00299230

Test Conducted

Photo







Intertek Testing Services Taiwan Ltd.



: TWNC00325494 Number

Date : Aug 02, 2013

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

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

26070 Piedra Negras, Coahuila, Mexico

Sample Description:

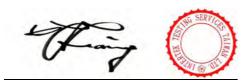
One (1) group of submitted samples said to be:

Part Description Colorant-Violet Part Number 057875 Date Sample Received : Jul 30, 2013 **Date Test Started** : Jul 30, 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





Number: TWNC00325494

Test Conducted Test Result Summary:

Test Item	<u>Unit</u>	Test Method -	<u>Result</u>	RL
<u>rest item</u>	<u>UIIII</u>		Violet plastic pellets	INL
Heavy Metal				
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
Antimony (Sb) Content	ppm	With reference to USEPA 3052, 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	MIII 6 1 150 (0004	ND	5
Pentabrominated Biphenyls (PentaBB)	ppm	With reference to IEC 62321: 2008, by solvent extraction	ND	5
Hexabrominated Biphenyls (HexaBB)	ppm	and determined by GC-MS and further HPLC-DAD confirmation	ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm	when necessary.	ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5



Number:

TWNC00325494

Test Conducted

<u>Test Item</u>	<u>Unit</u>	Test Method –	Result Violet plastic pellets	RL
Polybrominated Diphenyl	Ethers (violet plastic pellets		
Monobrominated Diphenyl Ethers (MonoBDE)	ppm		ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm	With reference to IEC 62321:	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm	2008, by solvent extraction and determined by GC-MS and	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm	further HPLC-DAD confirmation when necessary.	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm	when necessary.	ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Halogen Content				•
Fluorine (F)	ppm	With reference to EN	128	50
Chlorine (CI)	ppm	14582:2007 by calorimetric	ND	50
Bromine (Br)	ppm	bomb with oxygen and determined by Ion	ND	50
Iodine (I)	ppm	Chromatograph.	ND	50
Phthalates		g. sp		
Di(2-ethylhexyl) Phthalate (DEHP)	ppm		ND	10
Dibutyl Phthalate (DBP)	ppm	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	ND	10
Benzyl Butyl Phthalate (BBP)	ppm		ND	10
Diisobutyl Phthalate (DIBP)	ppm		ND	10



Number: TWNC00325494

Test Conducted

Test Item	<u>Unit</u>	Test Method	<u>Result</u>	RL
<u>rest item</u>	Offic	<u>rest Metriou</u>	Violet plastic pellets	KL
Others				
Hexabromocyclododecane (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

RL= Reporting Limit, Quantitation limit of analyte in sample

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

: Jul 30, 2013 Date Sample Received

Test Period : Jul 30, 2013 To Aug 02, 2013

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 Ethers (PBDEs)	0.1% (1000ppm)

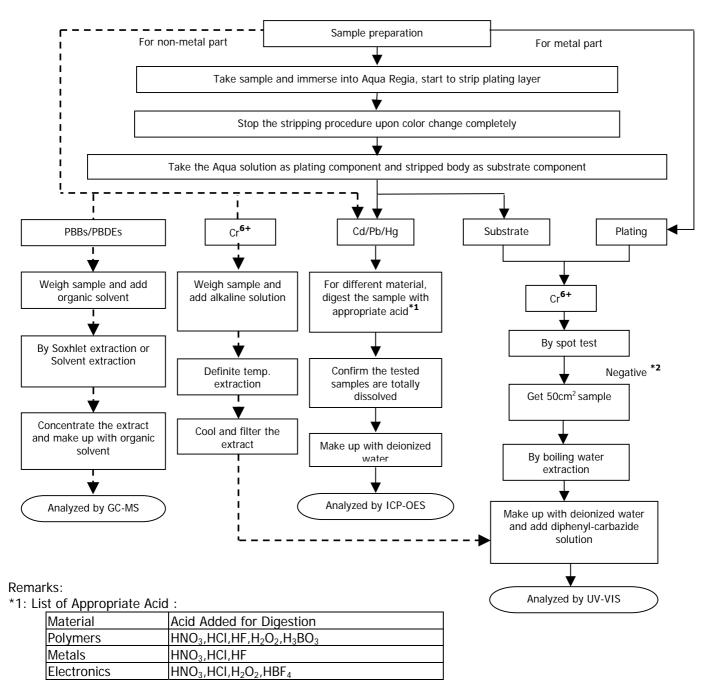
The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.



Number: TWNC00325494

Test Conducted Measurement Flowchart:

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



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



Page 5 of 12

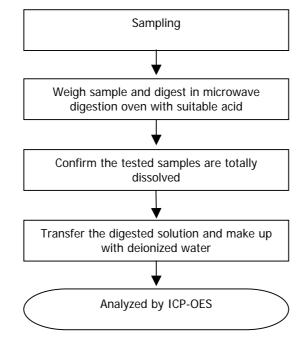


Number: TWNC00325494

Test Conducted

Measurement Flowchart:

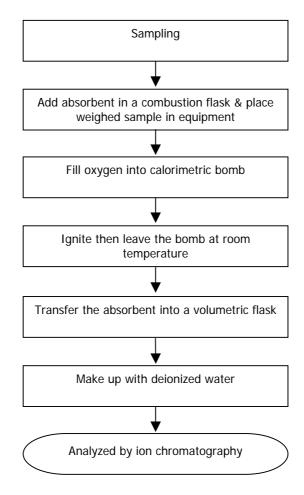
Test for Heavy Metal (Sb) Contents Reference Method: USEPA 3052





Number: TWNC00325494

Test Conducted Test for Halogen Contents Reference Method: EN 14582

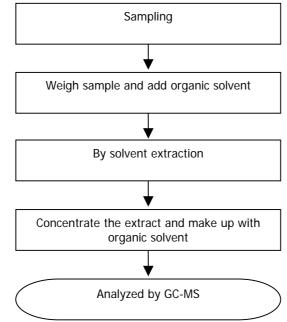




Number: TWNC00325494

Test Conducted Test for Phthalates Contents

Reference Method: EN 14372: 2004



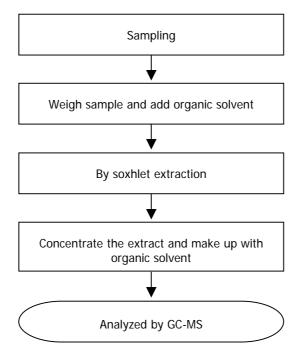


Number: TWNC00325494

Test Conducted

Test for Hexabromocyclododecane (HBCDD) Content

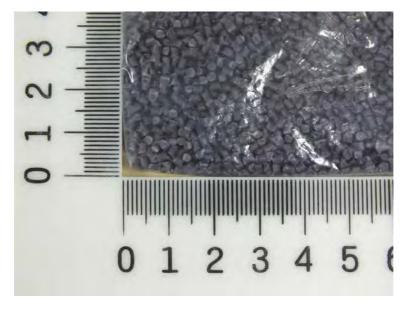
Reference Method: USEPA 3540C





Number: TWNC00325494





End of Report

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: TWNC00325496 Number

: Aug 02, 2013 Date

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

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:

: Colorant Pink Part Description Part Number : 057876 Date Sample Received : Jul 30, 2013 **Date Test Started** : Jul 30, 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





Number: TWNC00325496

Test Conducted Test Result Summary:

Test Item	<u>Unit</u>	Test Method	<u>Result</u>	RL
<u>rest item</u>	<u>UIIII</u>	<u>rest wethou</u>	Pink plastic pellets	IXL
Heavy Metal				
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
Antimony (Sb) Content	ppm	With reference to USEPA 3052, 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	MIII 6 1 150 (0004	ND	5
Pentabrominated Biphenyls (PentaBB)	ppm	With reference to IEC 62321: 2008, by solvent extraction	ND	5
Hexabrominated Biphenyls (HexaBB)	ppm	and determined by GC-MS and further HPLC-DAD confirmation	ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm	when necessary.	ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5



Test Conducted

Number: TWNC00325496

Test Item	Unit	<u>Test Method</u>	<u>Result</u>	RL			
<u>rest item</u>	OTIL		Pink plastic pellets	INL.			
	Polybrominated Diphenyl Ethers (PBDEs)						
Monobrominated Diphenyl Ethers (MonoBDE)	ppm		ND	5			
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5			
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5			
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm	M/H(ND	5			
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm	With reference to IEC 62321: 2008, by solvent extraction	ND	5			
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm	and determined by GC-MS and further HPLC-DAD confirmation	ND	5			
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm	when necessary.	ND	5			
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5			
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5			
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5			
Halogen Content	1			1			
Fluorine (F)	ppm	With reference to EN	ND	50			
Chlorine (CI)	ppm	14582:2007 by calorimetric	74	50			
Bromine (Br)	ppm	bomb with oxygen and determined by Ion	ND	50			
Iodine (I)	ppm	Chromatograph.	ND	50			
Phthalates				1.			
Di(2-ethylhexyl) Phthalate (DEHP)	ppm		ND	10			
Dibutyl Phthalate (DBP)	ppm	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	ND	10			
Benzyl Butyl Phthalate (BBP)	ppm		ND	10			
Diisobutyl Phthalate (DIBP)	ppm		ND	10			



Number: TWNC00325496

Test Conducted

<u>Test Item</u>	<u>Unit</u>	Test Method	Result Pink plastic pellets	RL
Others				
Hexabromocyclododecane (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

RL= Reporting Limit, Quantitation limit of analyte in sample

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

: Jul 30, 2013 Date Sample Received

Test Period : Jul 30, 2013 To Aug 02, 2013

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 Ethers (PBDEs)	0.1% (1000ppm)

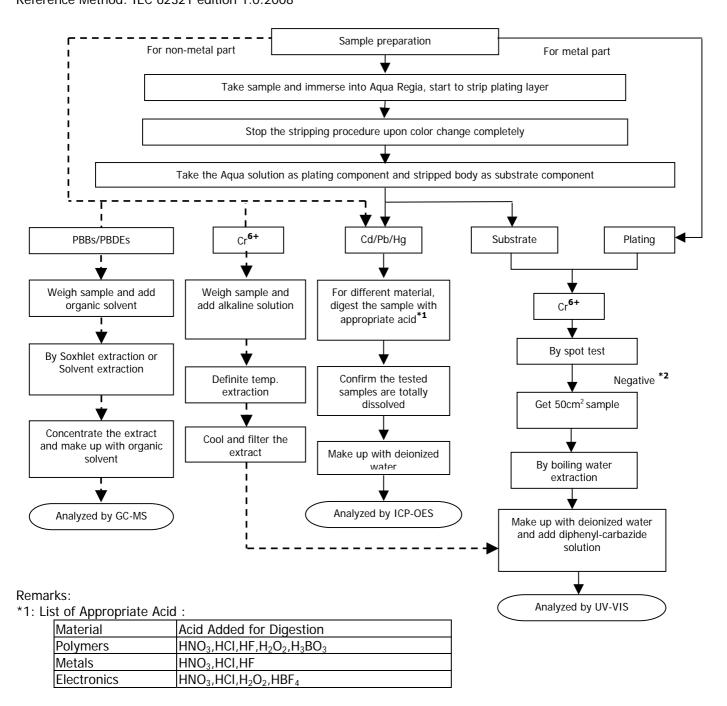
The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.



Number: TWNC00325496

Test Conducted Measurement Flowchart:

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



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



Page 5 of 12

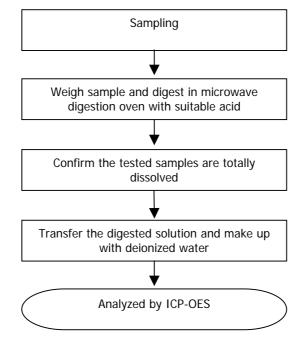


Number: TWNC00325496

Test Conducted

Measurement Flowchart:

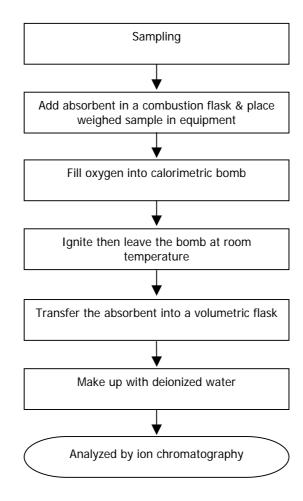
Test for Heavy Metal (Sb) Contents Reference Method: USEPA 3052





Number: TWNC00325496

Test Conducted Test for Halogen Contents Reference Method: EN 14582

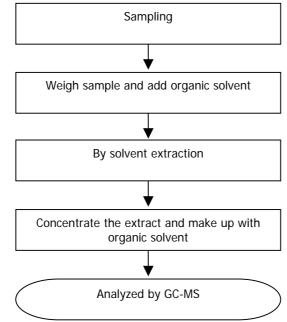




Number: TWNC00325496

Test Conducted Test for Phthalates Contents

Reference Method: EN 14372: 2004



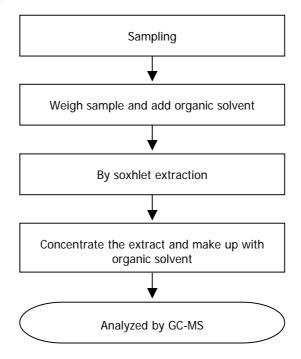


Number: TWNC00325496

Test Conducted

Test for Hexabromocyclododecane (HBCDD) Content

Reference Method: USEPA 3540C





Number: TWNC00325496





End of Report

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: TWNC00325498 Number

: Aug 01, 2013 Date

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

> 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:

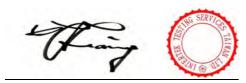
Part Description Colorant-Brown

Part Number 057878 Date Sample Received Jul 30, 2013 **Date Test Started** : Jul 30, 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





Number: TWNC00325498

Test Conducted Test Result Summary:

Test Item	<u>Unit</u>	Test Method	<u>Result</u>	RL
<u>rest item</u>	<u>UIIII</u>	<u>rest wethou</u>	Brown plastic pellets	KL
Heavy Metal				
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
Antimony (Sb) Content	ppm	With reference to USEPA 3052, 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	MIII 6 1 150 (0004	ND	5
Pentabrominated Biphenyls (PentaBB)	ppm	With reference to IEC 62321: 2008, by solvent extraction	ND	5
Hexabrominated Biphenyls (HexaBB)	ppm	and determined by GC-MS and further HPLC-DAD confirmation	ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm	when necessary.	ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5



Test Conducted

Number: TWNC00325498

Test Item	Unit	Test Method	<u>Result</u>	RL
rest item	UIIIL	<u>rest Metriod</u>	Brown plastic pellets	KL
Polybrominated Diphenyl	Ethers (PBDEs)		
Monobrominated Diphenyl Ethers (MonoBDE)	ppm		ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm	M/4h reference to 150 (2221	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm	With reference to IEC 62321: 2008, by solvent extraction	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm	and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm	when necessary.	ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Halogen Content	•			
Fluorine (F)	ppm	With reference to EN	ND	50
Chlorine (CI)	ppm	14582:2007 by calorimetric	ND	50
Bromine (Br)	ppm	bomb with oxygen and determined by Ion	ND	50
Iodine (I)	ppm	Chromatograph.	ND	50
Phthalates		om omatograpm		ı
Di(2-ethylhexyl) Phthalate (DEHP)	ppm		ND	10
Dibutyl Phthalate (DBP)	ppm	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	ND	10
Benzyl Butyl Phthalate (BBP)	ppm		ND	10
Diisobutyl Phthalate (DIBP)	ppm		ND	10



Number: TWNC00325498

Test Conducted

Test Item	<u>Unit</u>	Test Method	<u>Result</u>	RL
<u>rest item</u>	Offic	<u>rest wethou</u>	Brown plastic pellets	IXL
Others				
Hexabromocyclododecane (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

RL= Reporting Limit, Quantitation limit of analyte in sample

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

: Jul 30, 2013 Date Sample Received

Test Period : Jul 30, 2013 To Aug 01, 2013

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 Ethers (PBDEs)	0.1% (1000ppm)

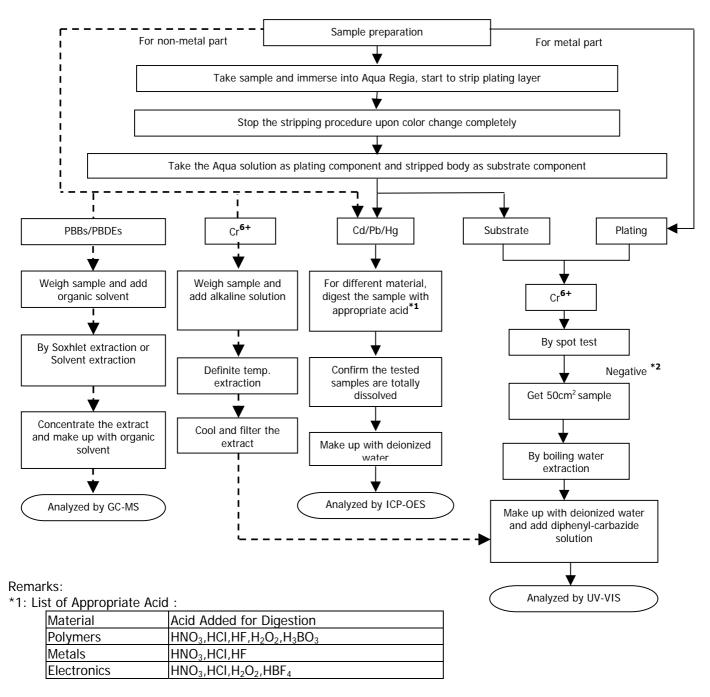
The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.



Number: TWNC00325498

Test Conducted Measurement Flowchart:

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



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



Page 5 of 12

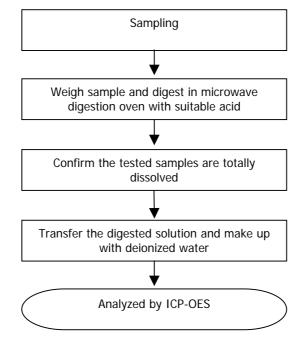


Number: TWNC00325498

Test Conducted

Measurement Flowchart:

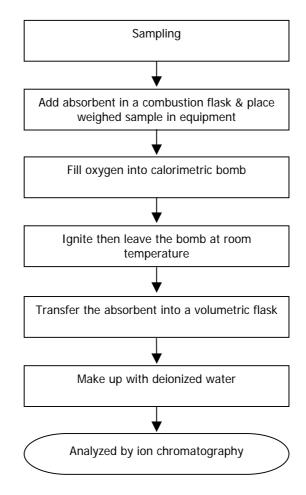
Test for Heavy Metal (Sb) Contents Reference Method: USEPA 3052





Number: TWNC00325498

Test Conducted Test for Halogen Contents Reference Method: EN 14582

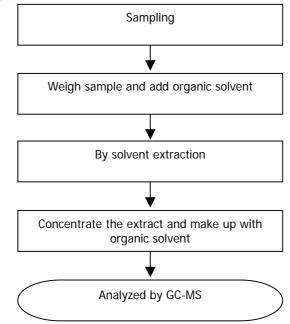




Number: TWNC00325498

Test Conducted Test for Phthalates Contents

Reference Method: EN 14372: 2004



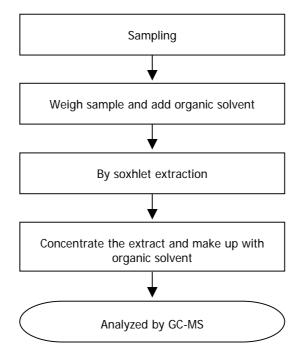


Number: TWNC00325498

Test Conducted

Test for Hexabromocyclododecane (HBCDD) Content

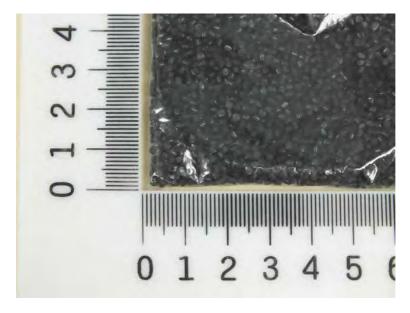
Reference Method: USEPA 3540C





Number: TWNC00325498





End of Report

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: TWNC00325499 Number

: Aug 01, 2013 Date

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

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

26070 Piedra Negras, Coahuila, Mexico

Sample Description:

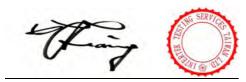
One (1) group of submitted samples said to be:

Part Description : Colorant-Red Part Number 057879 Date Sample Received Jul 30, 2013 **Date Test Started** : Jul 30, 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





Number: TWNC00325499

Test Conducted Test Result Summary:

<u>Test Item</u>	<u>Unit</u>	Test Method	<u>Result</u>	- RL		
			Red plastic pellets			
Heavy Metal						
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		
Antimony (Sb) Content	ppm	With reference to USEPA 3052, 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	Polybrominated Biphenyls (PBBs)					
Monobrominated Biphenyls (MonoBB)	ppm	With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5		
Dibrominated Biphenyls (DiBB)	ppm		ND	5		
Tribrominated Biphenyls (TriBB)	ppm		ND	5		
Tetrabrominated Biphenyls (TetraBB)	ppm		ND	5		
Pentabrominated Biphenyls (PentaBB)	ppm		ND	5		
Hexabrominated Biphenyls (HexaBB)	ppm		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

Number: TWNC00325499

<u>Test Item</u>	<u>Unit</u>	Test Method	<u>Result</u>	- RL		
			Red plastic pellets			
Polybrominated Diphenyl Ethers (PBDEs)						
Monobrominated Diphenyl Ethers (MonoBDE)	ppm	With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5		
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5		
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5		
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm		ND	5		
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm		ND	5		
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm		ND	5		
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm		ND	5		
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5		
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5		
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5		
Halogen Content		,		l .		
Fluorine (F)	ppm	With reference to EN 14582:2007 by calorimetric bomb with oxygen and determined by Ion Chromatograph.	ND	50		
Chlorine (CI)	ppm		ND	50		
Bromine (Br)	ppm		ND	50		
Iodine (I)	ppm		ND	50		
Phthalates				l-		
Di(2-ethylhexyl) Phthalate (DEHP)	ppm	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	ND	10		
Dibutyl Phthalate (DBP)	ppm		ND	10		
Benzyl Butyl Phthalate (BBP)	ppm		ND	10		
Diisobutyl Phthalate (DIBP)	ppm		ND	10		



Number: TWNC00325499

Test Conducted

<u>Test Item</u>	<u>Unit</u>	<u>Test Method</u>	Result Red plactic pollets	RL
Others			Red plastic pellets	
Hexabromocyclododecane (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

RL= Reporting Limit, Quantitation limit of analyte in sample

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

: Jul 30, 2013 Date Sample Received

Test Period : Jul 30, 2013 To Aug 01, 2013

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 Ethers (PBDEs)	0.1% (1000ppm)

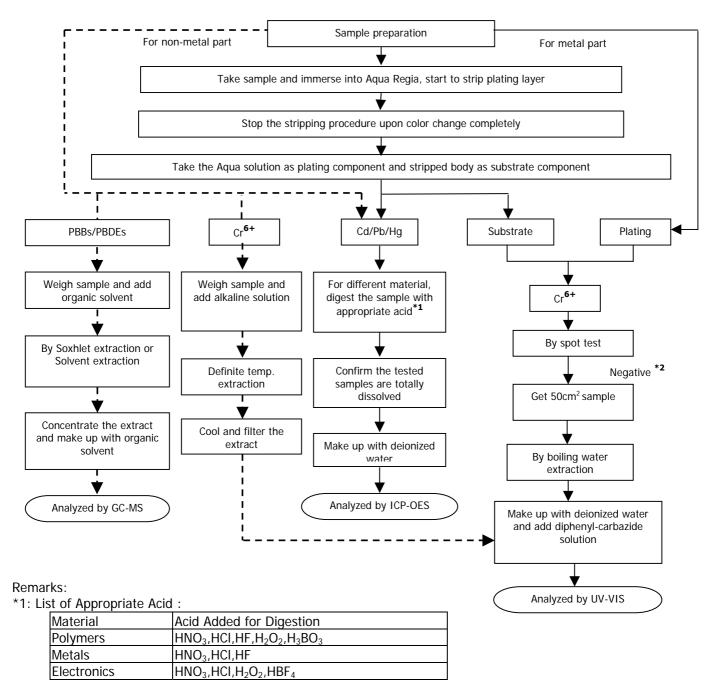
The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.



Number: TWNC00325499

Test Conducted Measurement Flowchart:

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



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



Page 5 of 12

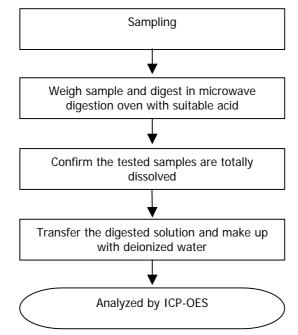


Number: TWNC00325499

Test Conducted

Measurement Flowchart:

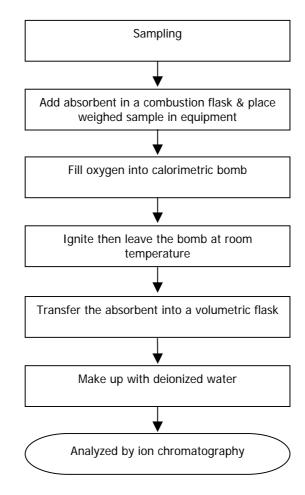
Test for Heavy Metal (Sb) Contents Reference Method: USEPA 3052





Number: TWNC00325499

Test Conducted Test for Halogen Contents Reference Method: EN 14582

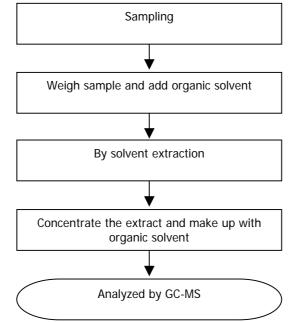




Number: TWNC00325499

Test Conducted Test for Phthalates Contents

Reference Method: EN 14372: 2004



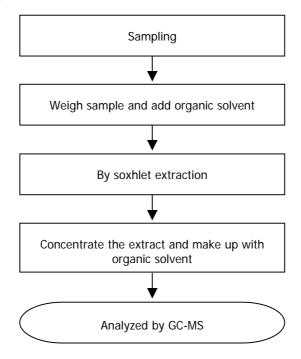


Number: TWNC00325499

Test Conducted

Test for Hexabromocyclododecane (HBCDD) Content

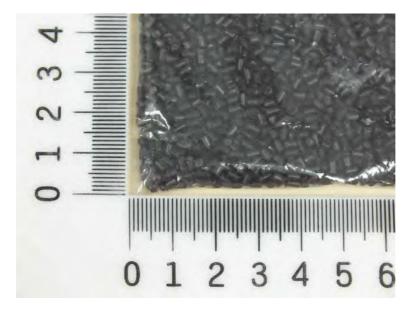
Reference Method: USEPA 3540C





TWNC00325499 Number:





End of Report

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Test Report Number : TWNC00299231

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 blue

: 057880 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 Blue plastic pellets	RL
Heavy Metal	1			
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	ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm	necessary.	ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5





Test Conducted

		1		
			<u>Result</u>	
Test Item	Unit	Test Method	<u>Blue</u>	RL
1000 10011	01110	rese ricerroa	plastic	1011
			pellets	
Polybrominated Diphenyl Ethers	(PBDEs)			
Monobrominated Diphenyl Ethers	2222		MD	5
(MonoBDE)	ppm		ND	5
Dibrominated Diphenyl Ethers	nnm		ND	5
(DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers	nnm		ND	5
(TriBDE)	ppm		ND	7
Tetrabrominated Diphenyl	ppm	With reference to IEC	ND	5
Ethers (TetraBDE)	ррш	62321: 2008, by solvent	ND	3
Pentabrominated Diphenyl	ppm	extraction and	ND	5
Ethers (PentaBDE)	PPIII	determined by GC-MS and	ND	3
Hexabrominated Diphenyl Ethers	ppm	further HPLC-DAD	ND	5
(HexaBDE)	PPIII	confirmation when	1112	<u> </u>
Heptabrominated Diphenyl	ppm	necessary.	ND	5
Ethers (HeptaBDE)	PPIII		1112	<u> </u>
Octabrominated Diphenyl Ethers	ppm		ND	5
(OctaBDE)	PP			9
Nonabrominated Diphenyl Ethers	ppm		ND	5
(NonaBDE)	PP			_
Decabrominated Diphenyl Ether	ppm		ND	5
(DecaBDE)	PP			_
Phthalates	T	1 .		
Di(2-ethylhexyl) Phthalate	ppm	With reference to EN	ND	50
(DEHP)		14372: 2004, by solvent		
Dibutyl Phthalate (DBP)	ppm	extraction and	ND	50
Benzyl Butyl Phthalate (BBP)	ppm	determined by GC-MS.	ND	50
Halogen Content	Т			
Fluorine (F)	ppm	With reference to EN	ND	50
Chlorine (Cl)	ppm	14582:2007 by calorimetric bomb with	ND	50
Bromine (Br)	ppm	oxygen and determined	ND	50
Iodine (I)	ppm	by Ion Chromatograph.	ND	50
Others				
		With reference to USEPA		
Hexabromo cyclododecane		3540C, by solvent	3770	1.0
(HBCDD)	ppm	extraction and	ND	10
		determined by GC-MS.		
1	1	•		





Test Conducted

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

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.

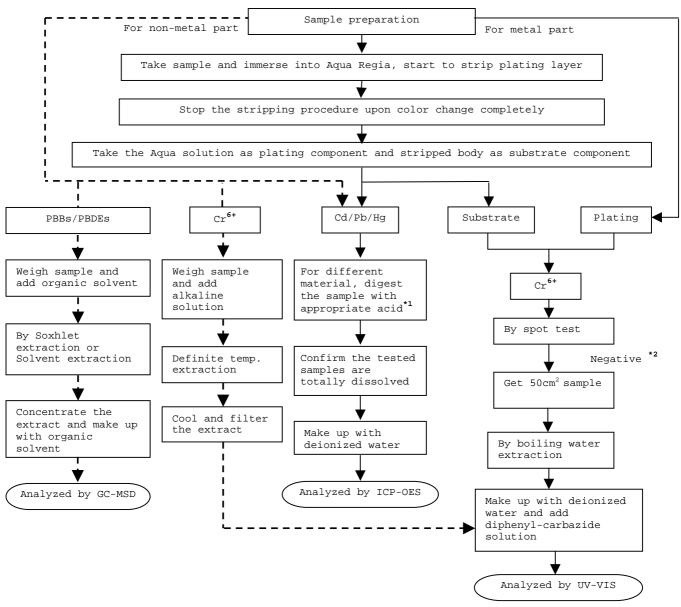




Test Conducted

(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:

<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

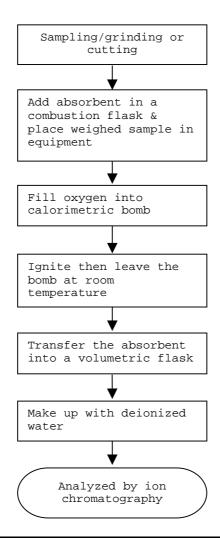
*2: If the result of spot test is positive, Chromium VI would be determined as detected.





Test Conducted

Test for Halogen Content Reference Standard: EN 14582

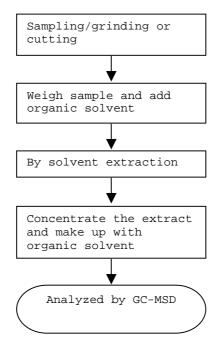






Test Conducted

Test For Phthalates Contents Reference Method: EN 14372: 2004

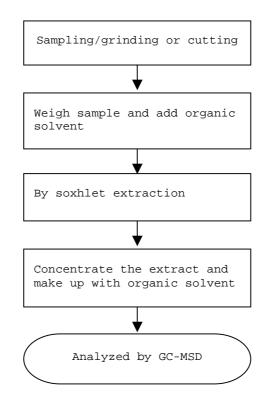






Test Conducted

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



End of Report

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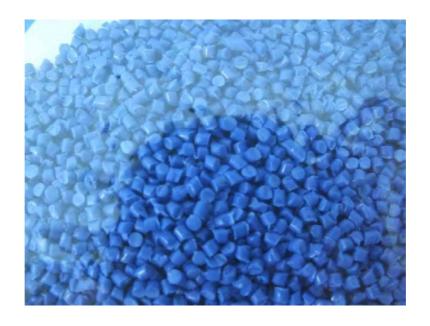




Test Conducted

<u>Photo</u>







Intertek Testing Services Taiwan Ltd.



: TWNC00325497 Number

: Aug 01, 2013 Date

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

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

26070 Piedra Negras, Coahuila, Mexico

Sample Description:

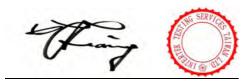
One (1) group of submitted samples said to be:

Part Description : Colorant-Tan Part Number 057877 Date Sample Received Jul 30, 2013 **Date Test Started** : Jul 30, 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





Number: TWNC00325497

Test Conducted Test Result Summary:

Tost Itom	<u>Unit</u>	<u>Test Method</u>	<u>Result</u>	RL
<u>Test Item</u>	UIIIL	<u>rest ivietriou</u>	Light brown plastic pellets	KL
Heavy Metal				
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
Antimony (Sb) Content	ppm	With reference to USEPA 3052, 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	M/H = 5 = 150 (2004	ND	5
Pentabrominated Biphenyls (PentaBB)	ppm	With reference to IEC 62321: 2008, by solvent extraction	ND	5
Hexabrominated Biphenyls (HexaBB)	ppm	and determined by GC-MS and further HPLC-DAD confirmation	ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm	when necessary.	ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5



Test Conducted

Number: TWNC00325497

Test Item	Unit	Test Method	<u>Result</u>	- RL
<u>rest item</u>	Offic	<u>rest metriou</u>	Light brown plastic pellets	I I I
Polybrominated Diphenyl	Ethers (PBDEs)		
Monobrominated Diphenyl Ethers (MonoBDE)	ppm		ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm	M/H 6	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm	With reference to IEC 62321: 2008, by solvent extraction	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm	and determined by GC-MS and further HPLC-DAD confirmation	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm	when necessary.	ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Halogen Content				•
Fluorine (F)	ppm	With reference to EN	ND	50
Chlorine (CI)	ppm	14582:2007 by calorimetric	ND	50
Bromine (Br)	ppm	bomb with oxygen and determined by Ion	ND	50
Iodine (I)	ppm	Chromatograph.	ND	50
Phthalates				•
Di(2-ethylhexyl) Phthalate (DEHP)	ppm		ND	10
Dibutyl Phthalate (DBP)	ppm	With reference to EN 14372:	ND	10
Benzyl Butyl Phthalate (BBP)	ppm	2004, by solvent extraction and determined by GC-MS.	ND	10
Diisobutyl Phthalate (DIBP)	ppm		ND	10



Number: TWNC00325497

Test Conducted

<u>Test Item</u>	<u>Unit</u>	Test Method	<u>Result</u>	RL
			Light brown plastic pellets	
Others				
Hexabromocyclododecane (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

RL= Reporting Limit, Quantitation limit of analyte in sample

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

: Jul 30, 2013 Date Sample Received

Test Period : Jul 30, 2013 To Aug 01, 2013

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 Ethers (PBDEs)	0.1% (1000ppm)

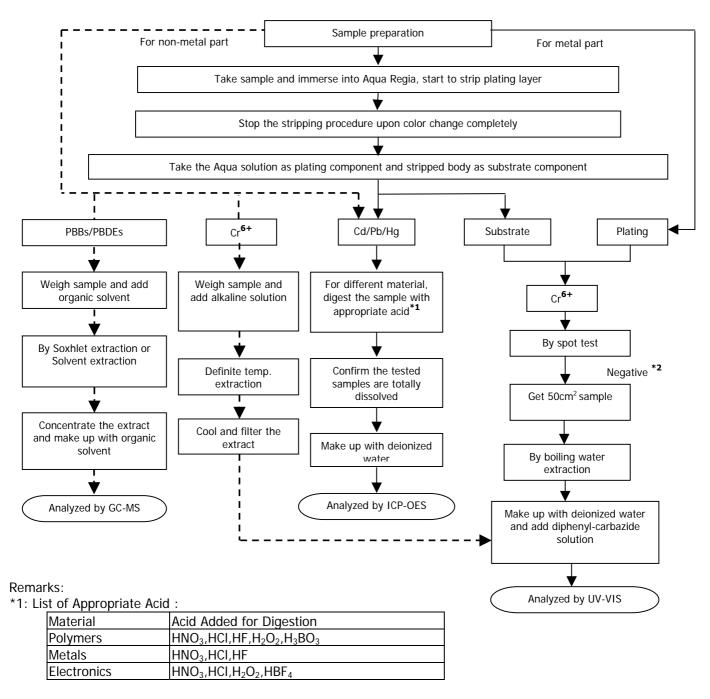
The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.



Number: TWNC00325497

Test Conducted Measurement Flowchart:

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



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



Page 5 of 12

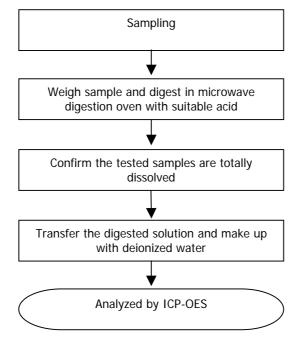


Number: TWNC00325497

Test Conducted

Measurement Flowchart:

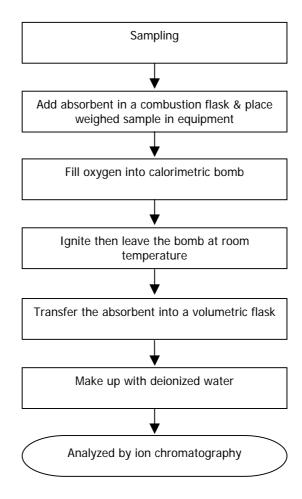
Test for Heavy Metal (Sb) Contents Reference Method: USEPA 3052





Number: TWNC00325497

Test Conducted Test for Halogen Contents Reference Method: EN 14582

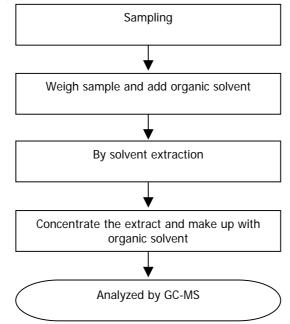




Number: TWNC00325497

Test Conducted Test for Phthalates Contents

Reference Method: EN 14372: 2004



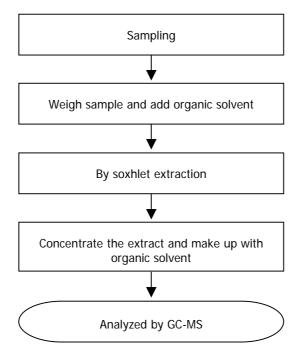


Number: TWNC00325497

Test Conducted

Test for Hexabromocyclododecane (HBCDD) Content

Reference Method: USEPA 3540C





TWNC00325497 Number:





End of Report

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Number

: TWNC00322214

Applicant:

Littelfuse, S.A. de C.V.

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

26070 Piedra Negras, Coahuila, Mexico

Date

: Jul 16, 2013

Sample Description:

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

Part Description : Green colorant

Part Number 057883 Date Sample Received Jul 08, 2013 Date Test Started Jul 09, 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





Number:

TWNC00322214

Test Conducted Test Result Summary:

Test Item	<u>Unit</u>	Test Method	Result Green plastic pellets	RL
Heavy Metal				1
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		ND	5
Pentabrominated Biphenyls (PentaBB)	ppm	With reference to IEC 62321: 2008, by solvent extraction	ND	5
Hexabrominated Biphenyls (HexaBB)	ppm	and determined by GC-MS and further HPLC-DAD confirmation	ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm	when necessary.	ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5



Number:

TWNC00322214

Test Conducted

Test Item	<u>Unit</u>	Test Method	Result Green plastic pellets	RL
Polybrominated Diphenyl	Ethers ((PBDEs)		
Monobrominated Diphenyl Ethers (MonoBDE)	ppm		ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm	With - 6	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm	With reference to IEC 62321: 2008, by solvent extraction	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm	and determined by GC-MS and further HPLC-DAD confirmation	ND	5 5 5 5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm	when necessary.	ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Halogen Content				
Fluorine (F)	ppm	With reference to EN	ND	50
Chlorine (CI)	ppm	14582:2007 by calorimetric	ND	50
Bromine (Br)	ppm	bomb with oxygen and determined by Ion	ND	50
Iodine (I)	ppm	Chromatograph.	ND	50
Phthalates				
Di(2-ethylhexyl) Phthalate (DEHP)	ppm	With reference to EN 14272	ND	10
Dibutyl Phthalate (DBP)	ppm	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	ND	10
Benzyl Butyl Phthalate (BBP)	ppm	and determined by GC-MS.	ND	10



Number:

TWNC00322214

Test Conducted

Test Item	Unit	Unit Test Method	Result	RL
Test Rem	Offic	<u>Test Fietriou</u>	Green plastic pellets	- KL
Others		**************************************		
Hexabromocyclododecane (HBCDD)	ppm	With reference to USEPA 3540C, by solvent extraction and determined by GC-MS.	ND	10

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

> ND = Not detected

RL = Reporting Limit, Quantitation limit of analyte in sample

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

Date Sample Received Jul 08, 2013

Test Period Jul 08, 2013 To Jul 12, 2013

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 (Cr6+) content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)

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

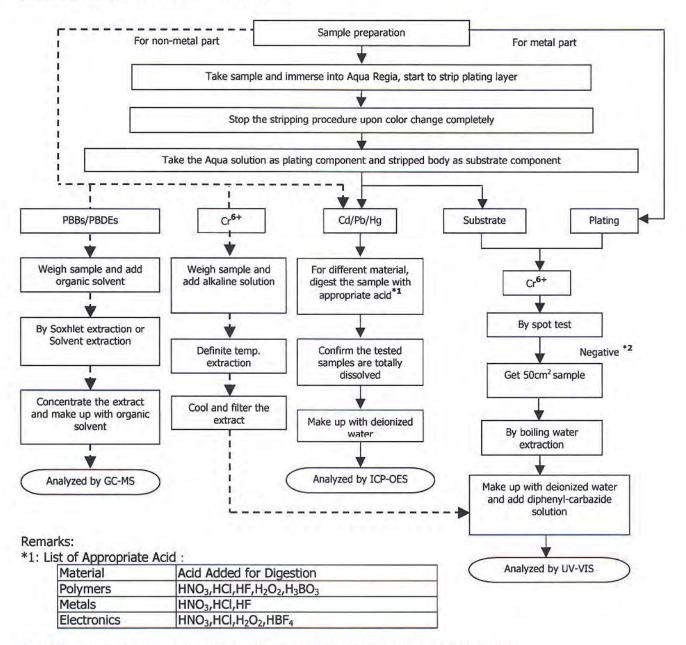


TWNC00322214 Number:

Test Conducted Measurement Flowchart:

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

Reference Method: IEC 62321 edition 1.0:2008



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

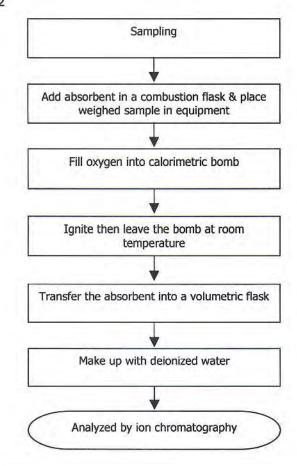




Number:

TWNC00322214

Test Conducted Test for Halogen Contents Reference Method: EN 14582



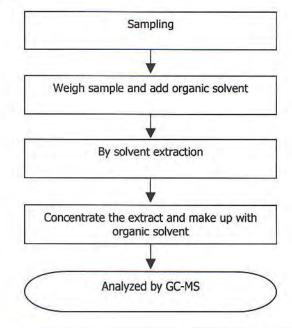


TWNC00322214 Number:

Test Conducted

Test for Phthalates Contents

Reference Method: EN 14372: 2004



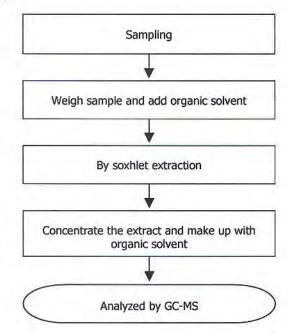


Number: TWNC00322214

Test Conducted

Test for Hexabromocyclododecane (HBCDD) Content

Reference Method: USEPA 3540C





Number: TWNC00322214





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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	With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Biphenyls (DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	ppm		ND	5
Tetrabrominated Biphenyls (TetraBB)	ppm		ND	5
Pentabrominated Biphenyls (PentaBB)	ppm		ND	5
Hexabrominated Biphenyls (HexaBB)	ppm		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 ricellod	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			1	
Di(2-ethylhexyl) Phthalate		With reference to EN	NID	Γ0
(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	ppm	3540C, by solvent	NID	1.0
(HBCDD)		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.

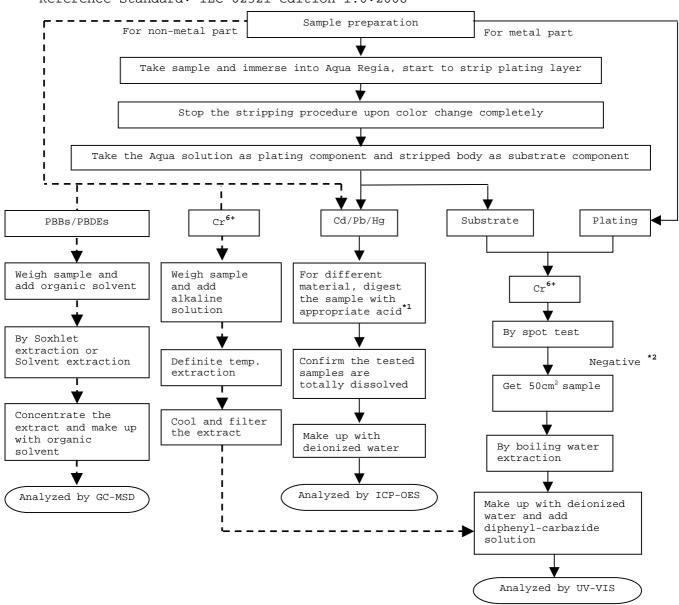




Test Conducted

(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

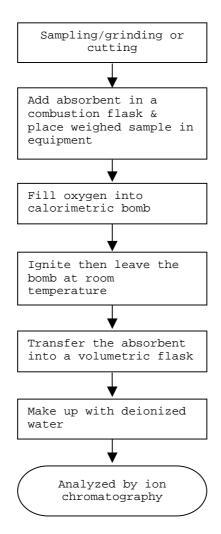
*2: If the result of spot test is positive, Chromium VI would be determined as detected.





Test Conducted

Test for Halogen Content Reference Standard: EN 14582

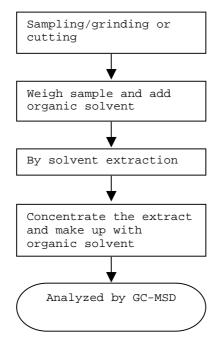






Test Conducted

Test For Phthalates Contents Reference Method: EN 14372: 2004

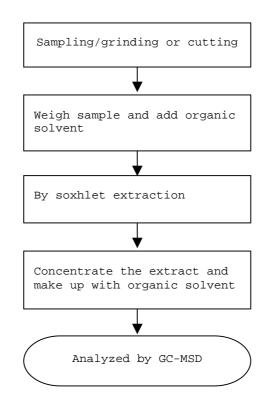






Test Conducted

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



End of Report

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Test Conducted

Photo







Intertek Testing Services Taiwan Ltd.



: TWNC00331293 Number

Date : Sep 14, 2013

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

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 : YELLOW COLORANT

Part Number 057899 Date Sample Received Sep 10, 2013

Date Test Started Sep 10, 2013 to Sep 13, 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





Number:

TWNC00331293

Test Conducted

Test Result Summary:

Test Item	<u>Unit</u>	Test Method	<u>Result</u>	RL
<u>reserrem</u>	Offic	<u>rest method</u>	Orange plastic pellets	I IXL
Heavy Metal				
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
Antimony (Sb) Content	ppm	With reference to USEPA 3052, 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	With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Biphenyls (DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	ppm		ND	5
Tetrabrominated Biphenyls (TetraBB)	ppm		ND	5
Pentabrominated Biphenyls (PentaBB)	ppm		ND	5
Hexabrominated Biphenyls (HexaBB)	ppm		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

Number: TWNC00331293

Tost Itom	Linit	Took Makka d	<u>Result</u>	DI
<u>rest item</u>	Test Item Unit Test Method	Orange plastic pellets	RL	
Polybrominated Diphenyl	Polybrominated Diphenyl Ethers (PBDEs)			
Monobrominated Diphenyl Ethers (MonoBDE)	ppm	With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and	ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm		ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm		ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm	further HPLC-DAD confirmation when necessary.	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm	when necessary.	ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Halogen Content	_			_
Fluorine (F)	ppm	With reference to EN	ND	50
Chlorine (Cl)	ppm	14582:2007 by combustion bomb with oxygen and determined by Ion Chromatography.	ND	50
Bromine (Br)	ppm		ND	50
Iodine (I)	ppm		ND	50
Phthalates				
Di(2-ethylhexyl) Phthalate (DEHP)	ppm	With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.	ND	10
Dibutyl Phthalate (DBP)	ppm		ND	10
Benzyl Butyl Phthalate (BBP)	ppm		ND	10
Diisobutyl phthalate (DIBP)	ppm		ND	10
Others				
Hexabromocyclododecane (HBCDD)	ppm	With reference to USEPA 3540C, by solvent extraction and determined by GC-MS.	ND	10



Number: TWNC00331293

Test Conducted

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

= Not detected

RL = Reporting Limit, Quantitation limit of analyte in sample

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

Date Sample Received : Sep 10,2013

Test Period Sep 10,2013 to Sep 13,2013

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 Ethers (PBDEs)	0.1% (1000ppm)

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



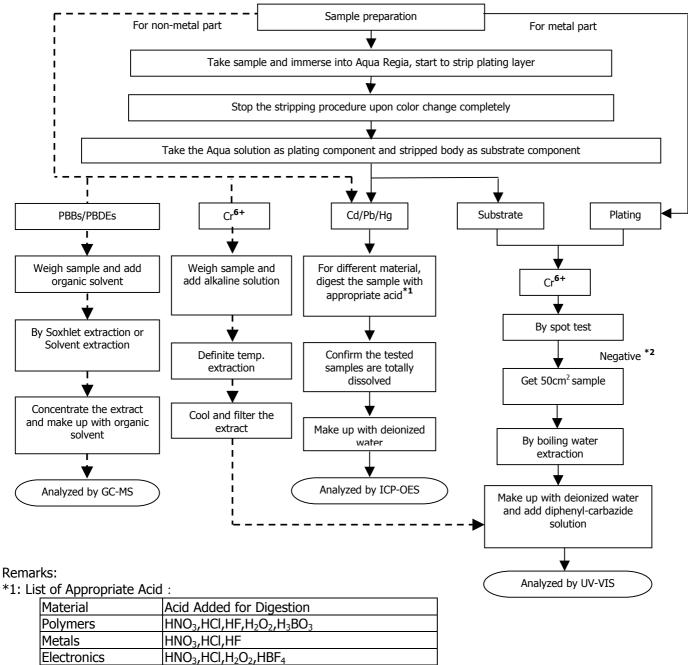
Number: TWNC00331293

Test Conducted

Measurement Flowchart:

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

Reference Method: IEC 62321 edition 1.0:2008



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



Page 5 of 12

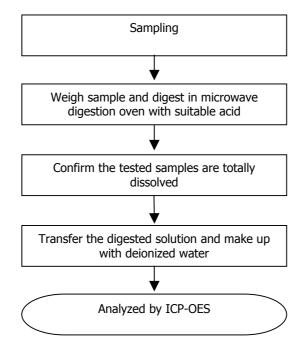


Number: TWNC00331293

Test Conducted

Measurement Flowchart:

Test for Heavy Metal (Sb) Contents Reference Method: USEPA 3052



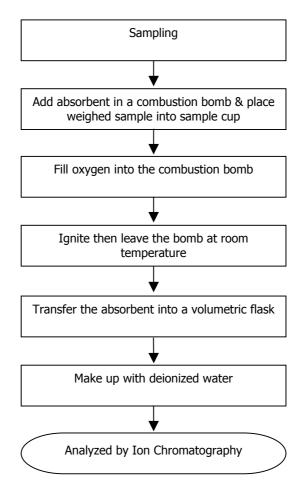


Number: TWNC00331293

Test Conducted

Measurement Flowchart:

Test for Halogen Contents Reference Method: EN 14582



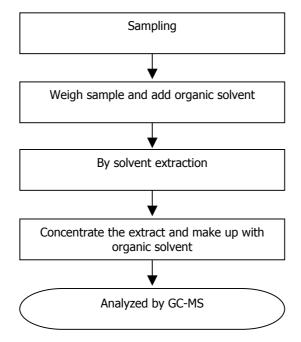


Number: TWNC00331293

Test Conducted

Measurement Flowchart:

Test for Phthalates Contents Reference Method: EN 14372: 2004





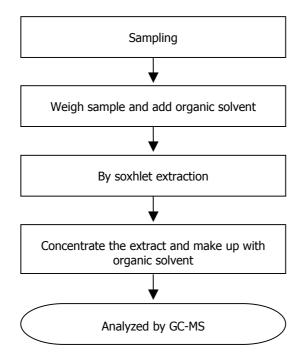
Number: TWNC00331293

Test Conducted

Measurement Flowchart:

Test for Hexabromocyclododecane (HBCDD) Content

Reference Method: USEPA 3540C





Number: TWNC00331293





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