

# **ICP Test Report Certification Packet**

Company name:	Littelfuse, Inc.		
Product Series:	297		
Product #:	297 Series		
Issue Date:	April 25, 2013		
It is hereby certified by Littelfuse, Inc. that there is neither RoHS (2011/65/EU – recast of EU Directive 2002/95/EC, 2011/65/EU)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes. In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.			
	Issued by:	JENNY DINGLASAN	
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(1) Parts, sub-materials a	•	110.00 Professional liverage designs and actions of the second sections of the second sections of the second sections of the sections of the second sections of the second sections of the section section section sections of the section sec	
Littelfuse, Inc.	ers the 297 series no	oHS-Compliant series products manufactured by	
	< Raw Materials Used Please see Table 1		
(2) The ICP data on all r Please see app	measurable substance propriate pages as iden		
Remarks :			



Table 1: List of Raw Materials covered by this report

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	955408-1xx/ 955410	Zinc Strip	3-8
2	057880	Blue Colorant	9-18
3	087893	Cover Clear colorant	19-27
4	057786	Housing (Green)	28-36
	425498	White Foil	37-45
5	057875	Housing	46-54
7	425711	Hot Stamp Foil	55-63
8	057877	Tan Colorant	64-72
9	057876	Housing colorant	73-81
10	057878	Brown Colorant	82-90
11	057879	Red Colorant	91-99
12	057881	Yellow Colorant	100-108
13	057874	Gray Colorant	109-118
14	057357	Base Molding Resin	119-128
15	057883	Green Colorant	129-137



Test Report Number: TWNC00281445

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 : MINI SKIVED ZINC STRIP 5A

Part Number : 955408-108

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

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Date : Oct 23, 2012





#### Test Conducted

#### ( I ) Test Result Summary :

Togt Itom	Result (ppm)	
Test Item	(1)	(2)
Heavy Metal		
Cadmium (Cd) content	2	3
Lead (Pb) content	14	109
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

mg/kg with 50cm<sup>2</sup> = 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 cm<sup>2</sup> was used and the dilution factor was adjusted accordingly.

#### Tested Components

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

Responsibility of Chemist : Irene Chiou / Kevin Liu

Date Sample Received : Oct 16, 2012

Test Period : Oct 18, 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 <sup>6+</sup> ) 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 <sup>6+</sup> ) 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 <sup>2</sup>

Remark: Reporting limit = Quantitation limit of analyte in sample



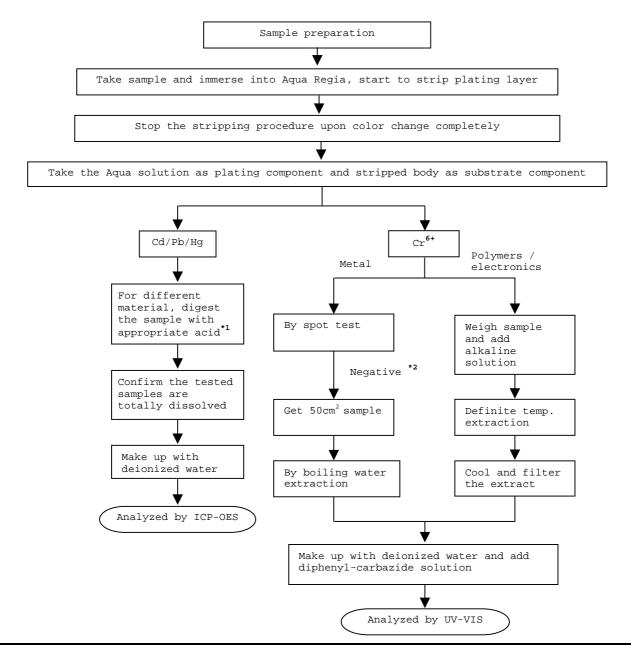


#### Test Conducted

#### (IV) Measurement Flowchart:

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

Reference Standard: IEC 62321 edition 1.0:2008



Page 4 of 6

### Intertek Testing Services Taiwan Ltd.



#### Test Conducted

#### Remarks:

\*1: List of Appropriate Acid:

± ± ±	
Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3,</sub> HCl,HF
Electronics	HNO <sub>3</sub> ,HCl,H <sub>2</sub> O <sub>2</sub> ,HBF <sub>4</sub>

\*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.

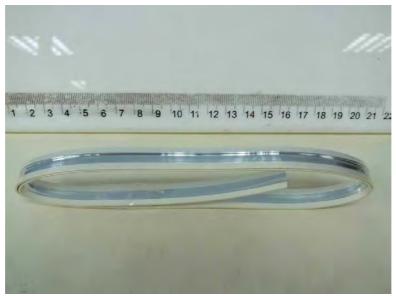




Test Conducted

### Photo









Test Report Number: TWNC00299231

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

> 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:

: Color concentrate blue Part Description

: 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) Test 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 <sup>6+</sup> ) Content	ppm	With reference to IEC 62321: 2008, by alkaline digestion and determined by UV-Vis Spectrophotometer.	ND	1
Polybrominated Biphenyls (PBBs	3)			
Monobrominated Biphenyls (MonoBB)	mqq		ND	5
Dibrominated Biphenyls (DiBB)	mqq		ND	5
Tribrominated Biphenyls (TriBB)	mqq		ND	5
Tetrabrominated Biphenyls (TetraBB)	mqq	With reference to IEC	ND	5
Pentabrominated Biphenyls (PentaBB)	ppm	62321: 2008, by solvent extraction and	ND	5
Hexabrominated Biphenyls (HexaBB)	mqq	determined by GC-MS and further HPLC-DAD confirmation when	ND	5
Heptabrominated Biphenyls (HeptaBB)	mqq	necessary.	ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5





Test Conducted

		1	D 1.	
<u>Test Item</u>	<u>Unit</u>	<u>Test Method</u>	Result Blue 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 reference to IEC	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm	62321: 2008, by solvent extraction and determined by GC-MS and	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm	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	ND	50
Bromine (Br)	ppm	calorimetric bomb with oxygen and determined	ND	50
Iodine (I)	ppm	by Ion Chromatograph.	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

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 <sup>6+</sup> ) 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.

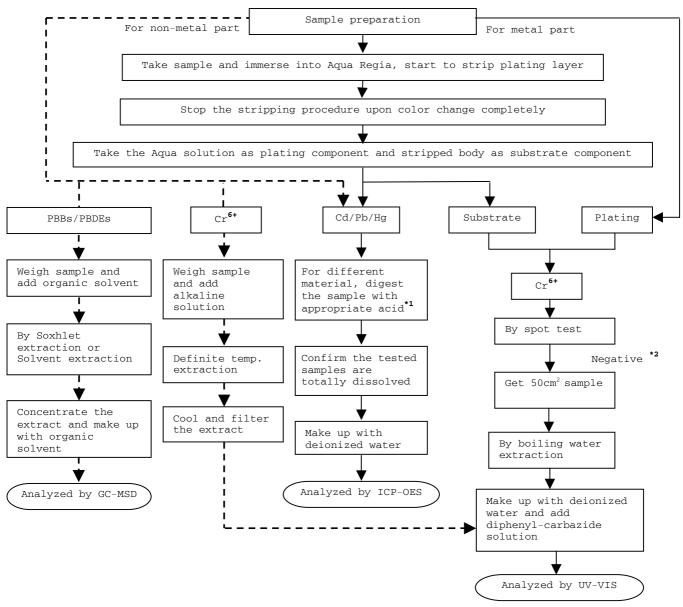




#### Test Conducted

#### (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 <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3,</sub> HCl,HF
Electronics	HNO <sub>3</sub> ,HCl,H <sub>2</sub> O <sub>2</sub> ,HBF <sub>4</sub>

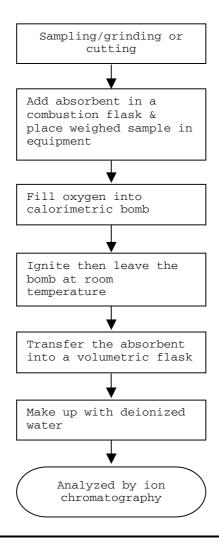
\*2: If the result of spot test is positive, Chromium VI would be determined as detected.





Test Conducted

Test for Halogen Content Reference Standard: EN 14582

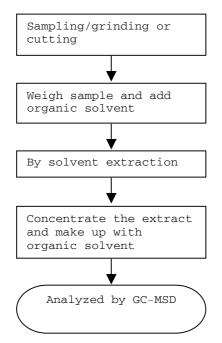






Test Conducted

Test For Phthalates Contents Reference Method: EN 14372: 2004

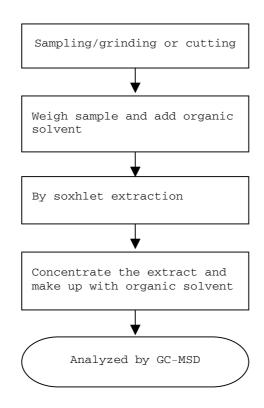






Test Conducted

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



End of Report

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.

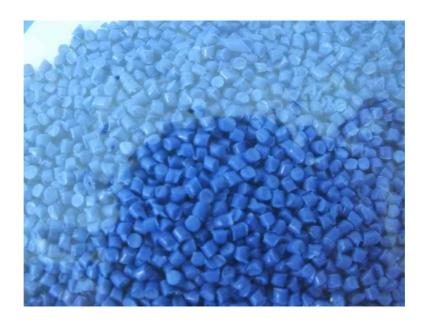




Test Conducted

#### Photo







## Intertek Testing Services Taiwan Ltd.



Test Report Number: TWNC00265152

Applicant: Littelfuse Philippines Inc.

Date : Jul 06, 2012

LIMA Technology Center, Lipa City,

Malvar, Batangas

Sample Description:

One (1) group of submitted samples said to be :
Part Description : COVER CLEAR COLORANT

Part Number : 057893

Date Sample Received : Jul 02, 2012 Date Test Started : Jul 02, 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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Page 1 of 9



Test Conducted

## ( I ) Test Result Summary :

Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND	rese Resure Summary	Result (ppm)
Heavy Metal  Cadmium (Cd) content Lead (Pb) content Mercury (Hg) content Chromium VI (Cr <sup>5+</sup> ) content ND Polybrominated Biphenyls (PBBs) Monobrominated Biphenyls (DiBB) Tribrominated Biphenyls (TriBB) ND Tetrabrominated Biphenyls (TriBB) ND Tetrabrominated Biphenyls (PentaBB) ND Hexabrominated Biphenyls (HexaBB) ND Hexabrominated Biphenyls (HexaBB) ND Octabrominated Biphenyls (HexaBB) ND Octabrominated Biphenyls (NonaBB) ND Decabrominated Biphenyls (NonaBB) ND Decabrominated Biphenyls (NonaBB) ND Decabrominated Biphenyls (NonaBB) ND Dibrominated Diphenyl Ethers (PBDES) Monobrominated Diphenyl Ethers (PBDES) Tribrominated Diphenyl Ethers (TriBDE) ND Dibrominated Diphenyl Ethers (TriBDE) ND Tetrabrominated Diphenyl Ethers (HexaBDE) ND Pentabrominated Diphenyl Ethers (HexaBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Heptabrominated Diphenyl Ethers (NonaBDE) ND Heptabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND ND Nonabrominated Diphenyl Ethers (NonaBDE) ND	Test Item	Clear Yellow
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Cadmium (Cd) content  Lead (Pb) content  Mercury (Hg) content  ND  Mercury (Hg) content  ND  Polybrominated Biphenyls (PBBs)  Monobrominated Biphenyls (MonoBB)  Dibrominated Biphenyls (DiBB)  Tribrominated Biphenyls (TriBB)  Tetrabrominated Biphenyls (TriBB)  ND  Tetrabrominated Biphenyls (TriBB)  ND  Hexabrominated Biphenyls (PentaBB)  ND  Hexabrominated Biphenyls (HexaBB)  ND  Heptabrominated Biphenyls (HexaBB)  ND  Octabrominated Biphenyls (NonaBB)  Docabrominated Biphenyls (NonaBB)  ND  Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyl (DecaBB)  ND  Polybrominated Diphenyl Ethers (MonoBDE)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  ND  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (TriBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (NonaBDE)  ND  Heptabrominated Diphenyl Ethers (NonaBDE)  ND  ND  ND  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  ND  ND  Halogen Content  Fluorine (F)  ND  Chlorine (C1)  ND  Bromine (Br)	Heavy Metal	
Lead (Pb) content  Mercury (Hg) content  ND  Mercury (Hg) content  ND  Chromium VI (Cr <sup>5+</sup> ) content  Monobrominated Biphenyls (PBBs)  Monobrominated Biphenyls (MonoBB)  Dibrominated Biphenyls (DiBB)  Tribrominated Biphenyls (TriBB)  ND  Tetrabrominated Biphenyls (TetraBB)  ND  Mexabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  ND  Hexabrominated Biphenyls (HexaBB)  ND  Octabrominated Biphenyls (OctaBB)  ND  Nonabrominated Biphenyls (NonaBB)  ND  Polybrominated Biphenyl (DecaBB)  Monobrominated Biphenyl (DecaBB)  ND  Polybrominated Diphenyl Ethers (PBDEs)  Monobrominated Diphenyl Ethers (MonoBDE)  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tretrabrominated Diphenyl Ethers (TetraBDE)  ND  Pentabrominated Diphenyl Ethers (HexaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  ND  ND  ND  ND  Nonabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (HoptaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (HoptaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  ND  ND  ND  ND  ND  ND  ND  N		ND
Mercury (Hg) content Chromium VI (Cr <sup>6+</sup> ) content Polybrominated Biphenyls (PBBs)  Monobrominated Biphenyls (MonoBB) Dibrominated Biphenyls (DiBB) Tribrominated Biphenyls (TriBB) ND Tribrominated Biphenyls (TriBB) ND Tetrabrominated Biphenyls (TetraBB) Pentabrominated Biphenyls (PentaBB) ND Hexabrominated Biphenyls (HexaBB) Heptabrominated Biphenyls (HeytaBB) ND Octabrominated Biphenyls (NonaBB) ND Nonabrominated Biphenyls (NonaBB) Decabrominated Biphenyl (DecaBB) ND Polybrominated Diphenyl Ethers (PBDEs) Monobrominated Diphenyl Ethers (MonoBDE) Dibrominated Diphenyl Ethers (TriBDE) Tribrominated Diphenyl Ethers (TriBDE) ND Tetrabrominated Diphenyl Ethers (PentaBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Octabrominated Diphenyl Ethers (HexaBDE) ND Octabrominated Diphenyl Ethers (MonoBDE) ND Heptabrominated Diphenyl Ethers (NonaBDE) ND Octabrominated Diphenyl Ethers (NonaBDE) ND Heckabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Content Fluorine (F) ND ND ND ND	· · ·	
Chromium VI (Cr*) content  Polybrominated Biphenyls (PBBs)  Monobrominated Biphenyls (MonoBB)  Dibrominated Biphenyls (DiBB)  Tribrominated Biphenyls (TriBB)  Tribrominated Biphenyls (TriBB)  Tetrabrominated Biphenyls (TetraBB)  Pentabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  Heptabrominated Biphenyls (HexaBB)  ND  Hetpabrominated Biphenyls (NonaBB)  ND  Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyls (NonaBB)  ND  Polybrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDEs)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  Docabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  ND  ND  ND  ND  ND  ND  ND  N	· · ·	
Monobrominated Biphenyls (MonoBB)  Monobrominated Biphenyls (MonoBB)  Dibrominated Biphenyls (DiBB)  Tribrominated Biphenyls (TriBB)  Tetrabrominated Biphenyls (TetraBB)  Pentabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  Heptabrominated Biphenyls (HexaBB)  ND  Heptabrominated Biphenyls (HeptaBB)  ND  Octabrominated Biphenyls (NonaBB)  ND  Nonabrominated Biphenyls (NonaBB)  ND  Polybrominated Biphenyl (DecaBB)  Monobrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  Octabrominated Diphenyl Ethers (HexaBDE)  ND  Octabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  ND  Halogen Content  Fluorine (F)  ND  Chlorine (Cl)  ND  Bromine (Br)		
Monobrominated Biphenyls (MonoBB) ND Dibrominated Biphenyls (DiBB) ND Tribrominated Biphenyls (TriBB) ND Tetrabrominated Biphenyls (TetraBB) ND Pentabrominated Biphenyls (PentaBB) ND Hexabrominated Biphenyls (PentaBB) ND Hexabrominated Biphenyls (HexaBB) ND Heptabrominated Biphenyls (HeptaBB) ND Octabrominated Biphenyls (NonaBB) ND Nonabrominated Biphenyls (NonaBB) ND Polybrominated Biphenyl (DecaBB) ND Polybrominated Diphenyl Ethers (PBDES) Monobrominated Diphenyl Ethers (MonoBDE) ND Tribrominated Diphenyl Ethers (TriBDE) ND Tribrominated Diphenyl Ethers (TriBDE) ND Tetrabrominated Diphenyl Ethers (TetraBDE) ND Pentabrominated Diphenyl Ethers (PentaBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Heptabrominated Diphenyl Ethers (HexaBDE) ND Heptabrominated Diphenyl Ethers (HeptaBDE) ND Octabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ether (DecaBDE) ND Nonabrominated Diphenyl Ether (DecaBDE) ND Decabrominated Diphenyl Ether (DecaBDE) ND	· · · · · · · · · · · · · · · · · · ·	עמ
Dibrominated Biphenyls (DiBB) Tribrominated Biphenyls (TriBB) ND Tetrabrominated Biphenyls (TetraBB) Pentabrominated Biphenyls (PentaBB) ND Hexabrominated Biphenyls (HexaBB) ND Heptabrominated Biphenyls (HexaBB) ND Octabrominated Biphenyls (OctaBB) ND Nonabrominated Biphenyls (OctaBB) ND Nonabrominated Biphenyls (NonaBB) ND Pecabrominated Biphenyl (DecaBB) ND Polybrominated Diphenyl Ethers (PBDES) Monobrominated Diphenyl Ethers (MonoBDE) Dibrominated Diphenyl Ethers (TriBDE) ND Tribrominated Diphenyl Ethers (TetraBDE) ND Tetrabrominated Diphenyl Ethers (FentaBDE) ND Pentabrominated Diphenyl Ethers (HexaBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Heptabrominated Diphenyl Ethers (HexaBDE) ND Octabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ether (DecaBDE) ND Nonabrominated Diphenyl Ether (DecaBDE) ND Decabrominated Diphenyl Ether (DecaBDE) ND Chlorine (CI) ND Bromine (Br)		1
Tribrominated Biphenyls (TriBB)  Tetrabrominated Biphenyls (TetraBB)  Pentabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  Heptabrominated Biphenyls (HexaBB)  ND  Heptabrominated Biphenyls (HeptaBB)  Octabrominated Biphenyls (OctaBB)  ND  Nonabrominated Biphenyls (NonaBB)  ND  Polybrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (OctaBDE)  ND  Octabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)		
Tetrabrominated Biphenyls (TetraBB) ND Pentabrominated Biphenyls (PentaBB) ND Hexabrominated Biphenyls (HexaBB) ND Heptabrominated Biphenyls (HeptaBB) ND Octabrominated Biphenyls (HeptaBB) ND Octabrominated Biphenyls (NonaBB) ND Nonabrominated Biphenyls (NonaBB) ND Pecabrominated Biphenyl (DecaBB) ND Polybrominated Diphenyl Ethers (PBDES) Monobrominated Diphenyl Ethers (MonoBDE) ND Dibrominated Diphenyl Ethers (TriBDE) ND Tribrominated Diphenyl Ethers (TriBDE) ND Tetrabrominated Diphenyl Ethers (TetraBDE) ND Pentabrominated Diphenyl Ethers (PentaBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Heptabrominated Diphenyl Ethers (HexaBDE) ND Octabrominated Diphenyl Ethers (OctaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ether (DecaBDE) ND Halogen Content Fluorine (F) ND Chlorine (C1) ND Bromine (Br)		
Pentabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  ND  Heptabrominated Biphenyls (HeptaBB)  ND  Octabrominated Biphenyls (OctaBB)  ND  Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HeptaBDE)  ND  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ethers (NonaBDE)  ND  Halogen Content  Fluorine (F)  ND  ND  Bromine (Br)		
Hexabrominated Biphenyls (HexaBB)  Heptabrominated Biphenyls (HeptaBB)  Octabrominated Biphenyls (OctaBB)  ND  Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDEs)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ether (NonaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)		
Heptabrominated Biphenyls (HeptaBB)  Octabrominated Biphenyls (OctaBB)  ND  Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  ND  Hexabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HeptaBDE)  ND  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)		ND
Octabrominated Biphenyls (OctaBB) ND Nonabrominated Biphenyls (NonaBB) Decabrominated Biphenyl (DecaBB) ND Polybrominated Diphenyl Ethers (PBDEs) Monobrominated Diphenyl Ethers (MonoBDE) Dibrominated Diphenyl Ethers (DiBDE) Tribrominated Diphenyl Ethers (TriBDE) ND Tetrabrominated Diphenyl Ethers (TetraBDE) Pentabrominated Diphenyl Ethers (PentaBDE) Hexabrominated Diphenyl Ethers (PentaBDE) Hexabrominated Diphenyl Ethers (HexaBDE) ND Heptabrominated Diphenyl Ethers (HeptaBDE) Octabrominated Diphenyl Ethers (OctaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) Decabrominated Diphenyl Ethers (NonaBDE) ND Halogen Content Fluorine (F) Chlorine (C1) Bromine (Br)		ND
Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyl (DecaBB)  ND  Polybrominated Diphenyl Ethers (PBDEs)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)	Heptabrominated Biphenyls (HeptaBB)	ND
Decabrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDEs)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Octabrominated Biphenyls (OctaBB)	ND
Monobrominated Diphenyl Ethers (MonoBDE)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (OctaBDE)  ND  Decabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Nonabrominated Biphenyls (NonaBB)	ND
Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ethers (NonaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)	Decabrominated Biphenyl (DecaBB)	ND
Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Polybrominated Diphenyl Ethers (PBDEs)	
Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Monobrominated Diphenyl Ethers (MonoBDE)	ND
Tetrabrominated Diphenyl Ethers (TetraBDE) Pentabrominated Diphenyl Ethers (PentaBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Heptabrominated Diphenyl Ethers (HeptaBDE) Octabrominated Diphenyl Ethers (OctaBDE) Nonabrominated Diphenyl Ethers (NonaBDE) Decabrominated Diphenyl Ethers (NonaBDE) ND Halogen Content Fluorine (F) Chlorine (Cl) Bromine (Br) ND	Dibrominated Diphenyl Ethers (DiBDE)	ND
Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  NO  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Tribrominated Diphenyl Ethers (TriBDE)	ND
Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Tetrabrominated Diphenyl Ethers (TetraBDE)	ND
Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Pentabrominated Diphenyl Ethers (PentaBDE)	ND
Octabrominated Diphenyl Ethers (OctaBDE)  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Hexabrominated Diphenyl Ethers (HexaBDE)	ND
Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)  ND	Heptabrominated Diphenyl Ethers (HeptaBDE)	ND
Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)  ND	Octabrominated Diphenyl Ethers (OctaBDE)	ND
Halogen Content           Fluorine (F)         ND           Chlorine (Cl)         ND           Bromine (Br)         ND		ND
Halogen Content           Fluorine (F)         ND           Chlorine (Cl)         ND           Bromine (Br)         ND	Decabrominated Diphenyl Ether (DecaBDE)	ND
Chlorine (Cl) ND Bromine (Br) ND	Halogen Content	•
Chlorine (Cl) ND Bromine (Br) ND		ND
Bromine (Br) ND	Chlorine (Cl)	ND
Iodine (I) ND	Bromine (Br)	ND
	Iodine (I)	ND



#### Test Conducted

### ( I ) Test Result Summary :

<u>-</u>		
	Result (ppm)	
Test Item	Clear Yellow	
	Plastic Pellets	
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 : Jul 02, 2012

Test Period : Jul 02, 2012 To Jul 05, 2012

### ( $\Pi$ ) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr <sup>6+</sup> ) 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 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 <sup>6+</sup> ) 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
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

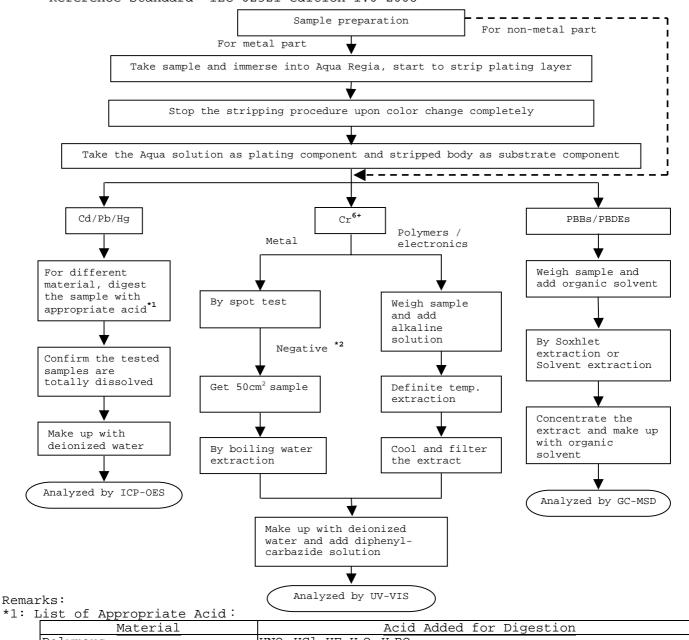
Remark: Reporting limit = Quantitation limit of analyte in sample



#### Test Conducted

### (IV) Measurement Flowchart:

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



Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> ,HCl,HF
Electronics	HNO <sub>3,</sub> HCl,H <sub>2</sub> O <sub>2,</sub> HBF <sub>4</sub>

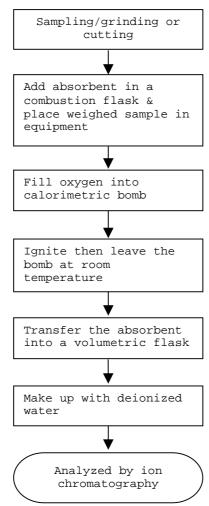
\*2: If the result of spot test is positive, Chromium VI would be determined as detected.



#### Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582

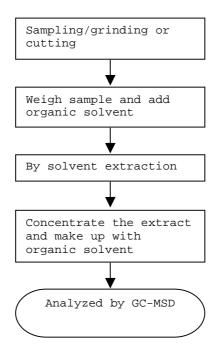




#### Test Conducted

### (IV) Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004



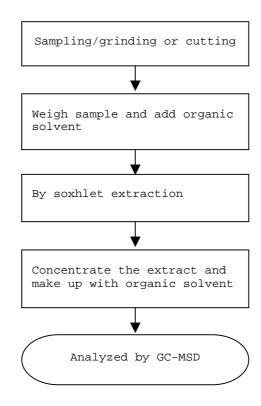


#### Test Conducted

### (IV) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)

Reference Standard: USEPA 3540C



End of Report

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







Test Report Number: TWNC00265153

Applicant: Littelfuse Philippines Inc.

Date : Jul 09, 2012

LIMA Technology Center, Lipa City,

Malvar, Batangas

Sample Description:

One (1) group of submitted samples said to be :
Part Description : HOUSING (GREEN)

Part Number : 057786

Date Sample Received : Jul 02, 2012 Date Test Started : Jul 02, 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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Page 1 of 9



### Test Conducted

## ( I ) Test Result Summary :

_	Result (ppm)
Test Item	Green Plastic
	Pellets
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr <sup>6+</sup> ) 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)	
Decabrominated Diphenyl Ether (DecaBDE)	ND
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	9543
Bromine (Br)	ND
Iodine (I)	ND



#### Test Conducted

### (I) Test Result Summary:

<u>-</u>	
	Result (ppm)
Test Item	Green Plastic
	Pellets
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 : Jul 02, 2012

Test Period : Jul 02, 2012 To Jul 06, 2012

### (II) RoHS Requirement:

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 <sup>6+</sup> ) 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 Item	<u>Test Method</u>	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 <sup>6+</sup> ) 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
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

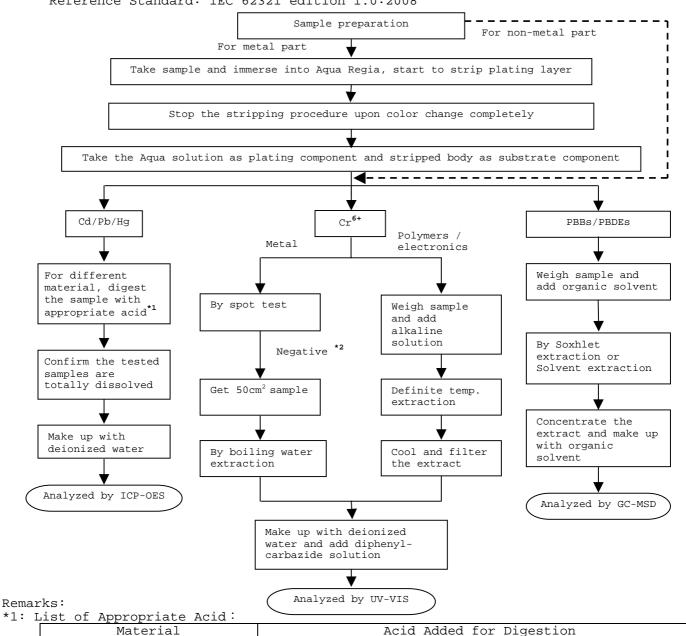
Remark: Reporting limit = Quantitation limit of analyte in sample



#### Test Conducted

#### (IV) Measurement Flowchart:

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



Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> ,HCl,HF
Electronics	HNO <sub>3,</sub> HCl,H <sub>2</sub> O <sub>2,</sub> HBF <sub>4</sub>

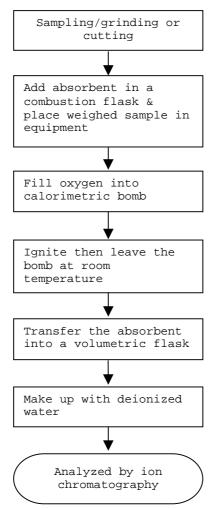
\*2: If the result of spot test is positive, Chromium VI would be determined as detected.



#### Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582

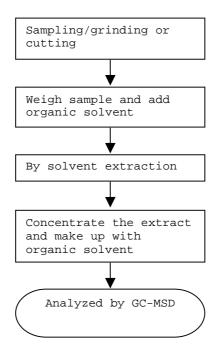




#### Test Conducted

### (IV) Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004



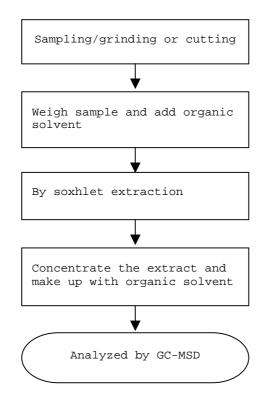


#### Test Conducted

### (IV) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)

Reference Standard: USEPA 3540C



End of Report

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Test Conducted

### Photo







Test Report Number: 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
<del>-</del>	1 225
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr <sup>6+</sup> ) 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 :

Test Item	Result (ppm)	
	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

# ( $\Pi$ ) 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 <sup>6+</sup> ) 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 <sup>6+</sup> ) 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



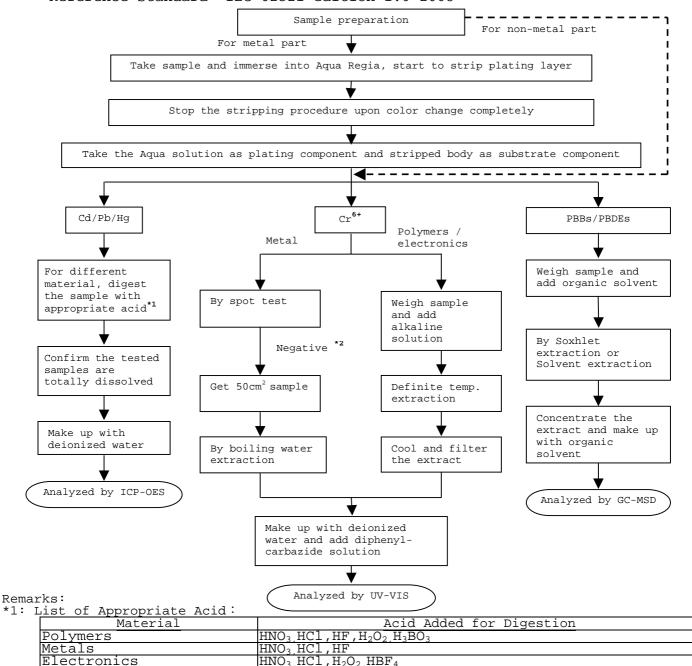


#### Test Conducted

#### (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.



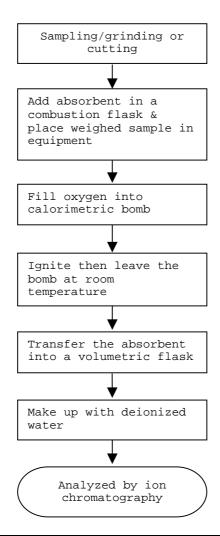
# Intertek Testing Services Taiwan Ltd.



Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582



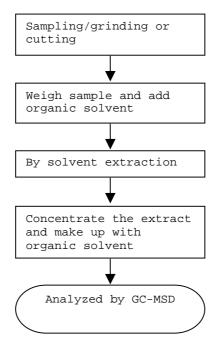




Test Conducted

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

Test For Phthalates Contents Reference Method: EN 14372: 2004



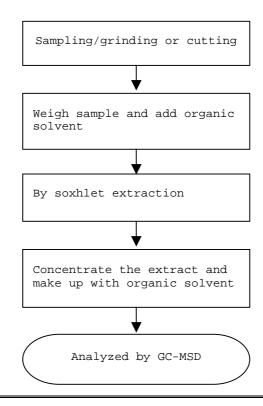




Test Conducted

(N) Measurement Flowchart:

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



End of Report

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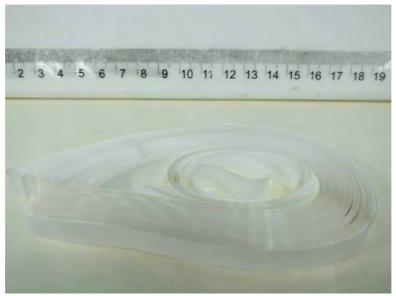


Test Conducted

Number : TWNC00281437

# Photo









Test Report Number: TWNC00265154

Applicant: Littelfuse Philippines Inc. Date : Jul 06, 2012

LIMA Technology Center, Lipa City,

Malvar, Batangas

Sample Description:

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

Part Description : HOUSING
Part Number : 057875

Date Sample Received : Jul 02, 2012 Date Test Started : Jul 02, 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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Page 1 of 9



# Test Conducted

# ( I ) Test Result Summary :

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



#### Test Conducted

# ( I ) Test Result Summary :

	Result (ppm)	
Test Item	Brown Plastic	
	Pellets	
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 : Jul 02, 2012

Test Period : Jul 02, 2012 To Jul 05, 2012

#### (Ⅱ) RoHS Requirement:

,	Tions Treduttement	
	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 <sup>6+</sup> ) 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 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 <sup>6+</sup> ) 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
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

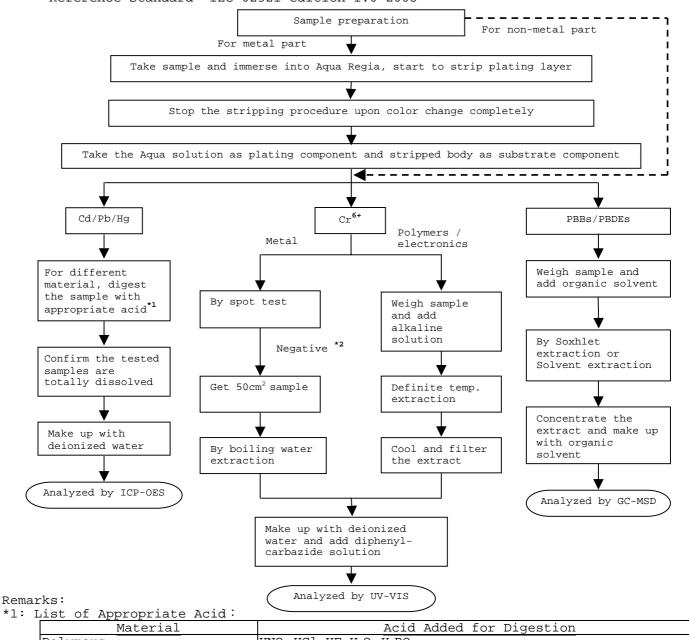
Remark: Reporting limit = Quantitation limit of analyte in sample



# Test Conducted

# (IV) Measurement Flowchart:

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



dist of Appropriate Acid:	
Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3,</sub> HCl,HF
Electronics	HNO <sub>3</sub> HCl, H <sub>2</sub> O <sub>2</sub> HBF <sub>4</sub>

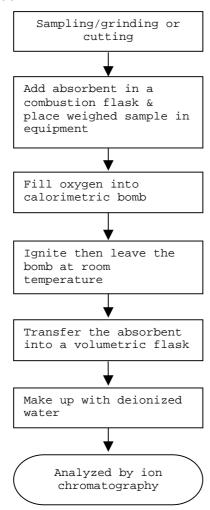
\*2: If the result of spot test is positive, Chromium VI would be determined as detected.



#### Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582

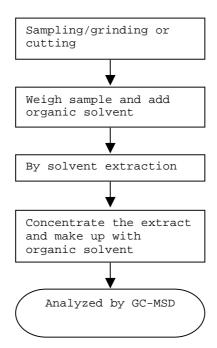




#### Test Conducted

# (IV) Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004



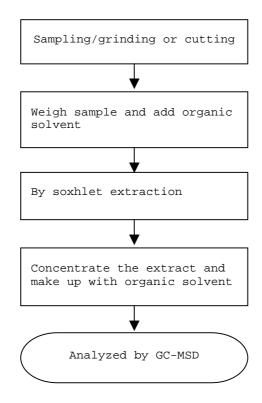


#### Test Conducted

(IV) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)

Reference Standard: USEPA 3540C



End of Report

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Test Conducted

# Photo







Test Report Number: TWNC00281442

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 : RED FOIL Part Number : 425711

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   Red Plastic Film   Red Plastic Film	rest Result Summary .	Result (ppm)
Cadmium (Cd) content  Lead (Pb) content  Mercury (Hg) content  Chromium VI (Cr <sup>5*</sup> ) content  Polybrominated Biphenyls (PBBs)  Monobrominated Biphenyls (MonoBB)  Dibrominated Biphenyls (DiBB)  Tribrominated Biphenyls (TriBB)  ND  Tetrabrominated Biphenyls (TetraBB)  Pentabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  ND  Hexabrominated Biphenyls (HexaBB)  ND  Octabrominated Biphenyls (HeytaBB)  ND  Octabrominated Biphenyls (NonaBB)  ND  Nonabrominated Biphenyls (NonaBB)  ND  Polybrominated Biphenyl (DecaBB)  ND  Decabrominated Diphenyl Ethers (PBDEs)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (TetraBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  ND  Octabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ethers (NonaBDE)  ND  ND  ND  ND  ND  ND  ND  ND  ND  N	Test Item	
Cadmium (Cd) content  Lead (Pb) content  MD  Mercury (Hg) content  Chromium VI (Cr <sup>6+</sup> ) content  Polybrominated Biphenyls (PBBs)  Monobrominated Biphenyls (MonoBB)  Dibrominated Biphenyls (DiBB)  Tribrominated Biphenyls (TriBB)  Tetrabrominated Biphenyls (TriBB)  MD  Tetrabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (PentaBB)  MD  Hexabrominated Biphenyls (HexaBB)  Hoptabrominated Biphenyls (HexaBB)  ND  Octabrominated Biphenyls (NonaBB)  Docabrominated Biphenyls (NonaBB)  ND  Polybrominated Biphenyls (NonaBB)  ND  Polybrominated Diphenyl Ethers (MonoBDE)  Tribrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (TetraBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  ND  Polybrominated Content  Fluorine (F)  Chlorine (C1)  111663  Bromine (Br)		Red Plastic Film
Lead (Pb) content  Mercury (Hg) content  Chromium VI (Cr <sup>6+</sup> ) content  Polybrominated Biphenyls (PBBs)  Monobrominated Biphenyls (MonoBB)  Dibrominated Biphenyls (DiBB)  Tribrominated Biphenyls (TriBB)  Tetrabrominated Biphenyls (TriBB)  ND  Tetrabrominated Biphenyls (PentaBB)  ND  Hexabrominated Biphenyls (HexaBB)  Hexabrominated Biphenyls (HexaBB)  ND  Heptabrominated Biphenyls (HeytaBB)  ND  Octabrominated Biphenyls (NonaBB)  ND  Docabrominated Biphenyls (NonaBB)  ND  Polybrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (FentaBDE)  ND  Pentabrominated Diphenyl Ethers (HexaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  ND  ND  ND  Nonabrominated Diphenyl Ethers (HexaBDE)  ND  ND  ND  ND  Nonabrominated Diphenyl Ethers (HexaBDE)  ND  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  ND  Talogen Content  Fluorine (F)  Chlorine (C1)  111663  Bromine (Br)	_	
Mercury (Hg) content Chromium VI (Cr <sup>6+</sup> ) content ND Chrominated Biphenyls (MonoBB) Monobrominated Biphenyls (MonoBB) ND Dibrominated Biphenyls (TriBB) ND Tribrominated Biphenyls (TriBB) ND Tetrabrominated Biphenyls (TetraBB) ND Pentabrominated Biphenyls (HexaBB) ND Hexabrominated Biphenyls (HexaBB) ND Octabrominated Biphenyls (HeptaBB) ND Nonabrominated Biphenyls (NonaBB) ND Poclybrominated Biphenyls (NonaBB) ND Poclybrominated Diphenyl Ethers (PBDEs) Monobrominated Diphenyl Ethers (MonoBDE) Dibrominated Diphenyl Ethers (DiBDE) Tribrominated Diphenyl Ethers (TriBDE) ND Tetrabrominated Diphenyl Ethers (TetraBDE) ND Tetrabrominated Diphenyl Ethers (HexaBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Octabrominated Diphenyl Ethers (HexaBDE) ND Octabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ether (DecaBDE) ND Nonabrominated Diphenyl Ether (DecaBDE) ND Hexalogen Content Fluorine (F) Chlorine (Cl) Snomine (Br)	Cadmium (Cd) content	ND
Chromium VI (Cr <sup>6+</sup> ) content  Polybrominated Biphenyls (PBBs)  Monobrominated Biphenyls (MonoBB)  Dibrominated Biphenyls (DiBB)  Tribrominated Biphenyls (TriBB)  Tribrominated Biphenyls (TriBB)  ND  Pentabrominated Biphenyls (PentaBB)  Pentabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  ND  Hexabrominated Biphenyls (HexaBB)  ND  Octabrominated Biphenyls (OctaBB)  ND  Nonabrominated Biphenyls (NonaBB)  ND  Polybrominated Biphenyl (DecaBB)  ND  Polybrominated Diphenyl Ethers (PBDEs)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (NonaBDE)  ND  Doctabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	,	ND
Monobrominated Biphenyls (MonoBB)  Monobrominated Biphenyls (MonoBB)  Dibrominated Biphenyls (DiBB)  Tribrominated Biphenyls (TriBB)  ND  Tetrabrominated Biphenyls (TetraBB)  Pentabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  Heptabrominated Biphenyls (HexaBB)  ND  Heptabrominated Biphenyls (HeptaBB)  ND  Octabrominated Biphenyls (NonaBB)  ND  Nonabrominated Biphenyls (NonaBB)  ND  Polybrominated Biphenyl (DecaBB)  Monobrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  Octabrominated Diphenyl Ethers (HexaBDE)  ND  Octabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)		ND
Monobrominated Biphenyls (MonoBB) Dibrominated Biphenyls (DiBB) Tribrominated Biphenyls (TriBB) ND Tetrabrominated Biphenyls (TetraBB) ND Pentabrominated Biphenyls (PentaBB) ND Hexabrominated Biphenyls (HexaBB) Heptabrominated Biphenyls (HexaBB) ND Octabrominated Biphenyls (HeptaBB) ND Nonabrominated Biphenyls (OctaBB) ND Nonabrominated Biphenyls (NonaBB) Decabrominated Biphenyls (NonaBB) ND Decabrominated Biphenyl (DecaBB) ND Polybrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE) Dibrominated Diphenyl Ethers (TriBDE) 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 (HeptaBDE) ND Octabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ether (DecaBDE) ND Hellogen Content Fluorine (F) 1114 Chlorine (Cl) Bromine (Br)	· · · · · · · · · · · · · · · · · · ·	ND
Dibrominated Biphenyls (DiBB) Tribrominated Biphenyls (TriBB) ND Tetrabrominated Biphenyls (TetraBB) Pentabrominated Biphenyls (PentaBB) ND Hexabrominated Biphenyls (HexaBB) Heptabrominated Biphenyls (HexaBB) ND Heptabrominated Biphenyls (HeptaBB) ND Octabrominated Biphenyls (OctaBB) ND Nonabrominated Biphenyls (NonaBB) Decabrominated Biphenyls (NonaBB) ND Decabrominated Biphenyl (DecaBB) Polybrominated Diphenyl Ethers (PBDES) Monobrominated Diphenyl Ethers (MonoBDE) Tribrominated Diphenyl Ethers (TriBDE) ND Tetrabrominated Diphenyl Ethers (TriBDE) ND Tetrabrominated Diphenyl Ethers (TetraBDE) Pentabrominated Diphenyl Ethers (TetraBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Hexabrominated Diphenyl Ethers (HexaBDE) ND Octabrominated Diphenyl Ethers (HeptaBDE) ND Nonabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ethers (NonaBDE) ND Decabrominated Diphenyl Ether (DecaBDE) ND Nonabrominated Diphenyl Ether (DecaBDE) ND Hellogen Content Fluorine (F) 1114 Chlorine (Cl) Bromine (Br)	Polybrominated Biphenyls (PBBs)	
Tribrominated Biphenyls (TriBB)  Tetrabrominated Biphenyls (TetraBB)  Pentabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  Heptabrominated Biphenyls (HexaBB)  ND  Octabrominated Biphenyls (OctaBB)  ND  Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyls (NonaBB)  ND  Nonabrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  Hexabrominated Diphenyl Ethers (HeptaBDE)  ND  Heptabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  1114  Chlorine (C1)  Bromine (Br)	Monobrominated Biphenyls (MonoBB)	ND
Tetrabrominated Biphenyls (TetraBB)  Pentabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  Heptabrominated Biphenyls (HeptaBB)  Octabrominated Biphenyls (OctaBB)  ND  Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyl (DecaBB)  ND  Polybrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (HootaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Hexalogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)	Dibrominated Biphenyls (DiBB)	ND
Pentabrominated Biphenyls (PentaBB)  Hexabrominated Biphenyls (HexaBB)  ND  Heptabrominated Biphenyls (HeptaBB)  Octabrominated Biphenyls (OctaBB)  Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  ND  Pentabrominated Diphenyl Ethers (PentaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ethers (NonaBDE)  ND  ND  Ralogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Tribrominated Biphenyls (TriBB)	ND
Hexabrominated Biphenyls (HexaBB)  Heptabrominated Biphenyls (HeptaBB)  Octabrominated Biphenyls (OctaBB)  ND  Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  ND  Pentabrominated Diphenyl Ethers (HexaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HexaBDE)  ND  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)	Tetrabrominated Biphenyls (TetraBB)	ND
Heptabrominated Biphenyls (HeptaBB)  Octabrominated Biphenyls (OctaBB)  Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyls (NonaBB)  Decabrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDES)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (TriBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  ND  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  ND  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)  ND	Pentabrominated Biphenyls (PentaBB)	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 (NonaBDE) ND Decabrominated Diphenyl Ether (DecaBDE) ND Halogen Content Fluorine (F) 1114 Chlorine (Cl) Bromine (Br) ND	Hexabrominated Biphenyls (HexaBB)	ND
Nonabrominated Biphenyls (NonaBB)  Decabrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDEs)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  ND  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ethers (NonaBDE)  ND  ND  Malogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)  ND	Heptabrominated Biphenyls (HeptaBB)	ND
Decabrominated Biphenyl (DecaBB)  Polybrominated Diphenyl Ethers (PBDEs)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  ND  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Malogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Octabrominated Biphenyls (OctaBB)	ND
Monobrominated Diphenyl Ethers (PBDEs)  Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  ND  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Nonabrominated Biphenyls (NonaBB)	ND
Monobrominated Diphenyl Ethers (MonoBDE)  Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  ND  Nonabrominated Diphenyl Ethers (NonaBDE)  ND  Decabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Decabrominated Biphenyl (DecaBB)	ND
Dibrominated Diphenyl Ethers (DiBDE)  Tribrominated Diphenyl Ethers (TriBDE)  ND  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  NO  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Polybrominated Diphenyl Ethers (PBDEs)	
Tribrominated Diphenyl Ethers (TriBDE)  Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  Halogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)	Monobrominated Diphenyl Ethers (MonoBDE)	ND
Tetrabrominated Diphenyl Ethers (TetraBDE)  Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  Nonabrominated Diphenyl Ethers (NonaBDE)  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  Halogen Content  Fluorine (F)  Chlorine (C1)  Bromine (Br)  ND	Dibrominated Diphenyl Ethers (DiBDE)	ND
Pentabrominated Diphenyl Ethers (PentaBDE)  Hexabrominated Diphenyl Ethers (HexaBDE)  ND  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  NO  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Tribrominated Diphenyl Ethers (TriBDE)	ND
Hexabrominated Diphenyl Ethers (HexaBDE)  Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)	Tetrabrominated Diphenyl Ethers (TetraBDE)	ND
Heptabrominated Diphenyl Ethers (HeptaBDE)  Octabrominated Diphenyl Ethers (OctaBDE)  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)  ND  ND  ND  ND  ND  ND  ND  ND	Pentabrominated Diphenyl Ethers (PentaBDE)	ND
Octabrominated Diphenyl Ethers (OctaBDE)  Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  ND  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)  ND  ND  ND  ND  ND  ND	Hexabrominated Diphenyl Ethers (HexaBDE)	ND
Nonabrominated Diphenyl Ethers (NonaBDE)  Decabrominated Diphenyl Ether (DecaBDE)  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)  ND  ND  ND  ND	Heptabrominated Diphenyl Ethers (HeptaBDE)	ND
Decabrominated Diphenyl Ether (DecaBDE)  Halogen Content  Fluorine (F)  Chlorine (Cl)  Bromine (Br)  ND	Octabrominated Diphenyl Ethers (OctaBDE)	ND
Halogen Content           Fluorine (F)         1114           Chlorine (Cl)         11663           Bromine (Br)         ND	Nonabrominated Diphenyl Ethers (NonaBDE)	ND
Fluorine (F) 1114 Chlorine (Cl) 11663 Bromine (Br) ND	Decabrominated Diphenyl Ether (DecaBDE)	ND
Chlorine (Cl) 11663 Bromine (Br) ND	Halogen Content	
Bromine (Br) ND	Fluorine (F)	1114
	Chlorine (Cl)	11663
Iodine (I) ND	Bromine (Br)	ND
	Iodine (I)	ND





#### Test Conducted

# ( I ) Test Result Summary :

Test Item -	Result (ppm)	
	Red 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

# ( $\Pi$ ) 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 <sup>6+</sup> ) 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 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 <sup>6+</sup> ) 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



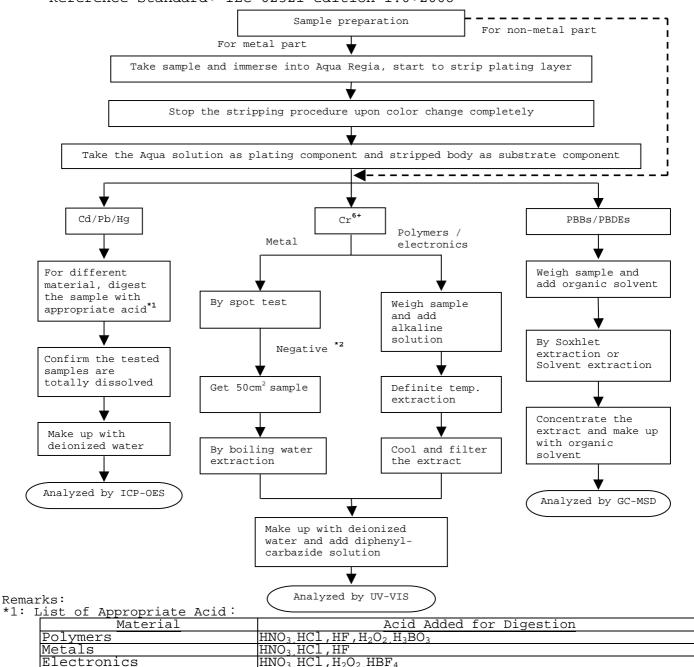


#### Test Conducted

#### (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.



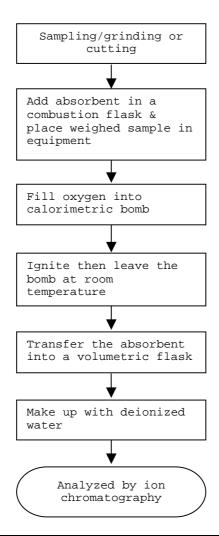
# Intertek Testing Services Taiwan Ltd.



Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582



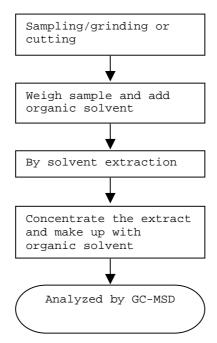




Test Conducted

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

Test For Phthalates Contents Reference Method: EN 14372: 2004







Test Conducted

(N) Measurement Flowchart:

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

> Sampling/grinding or cutting Weigh sample and add organic solvent By soxhlet extraction Concentrate the extract and make up with organic solvent Analyzed by GC-MSD

> > End of Report

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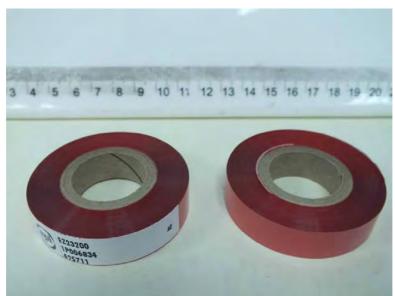


Test Conducted

Number: TWNC00281442

# Photo









Test Report Number: TWNC00265155

Applicant: Littelfuse Philippines Inc.

Date : Jul 06, 2012

LIMA Technology Center, Lipa City,

Malvar, Batangas

Sample Description:

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

Part Description : TAN COLORANT

Part Number : 057877

Date Sample Received : Jul 02, 2012 Date Test Started : Jul 02, 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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Page 1 of 9



# Test Conducted

# ( I ) Test Result Summary :

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



#### Test Conducted

# ( I ) Test Result Summary :

Most Thom	Result (ppm)
Test Item	Tan Plastic Pellets
Phthalates	<u> </u>
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 : Jul 02, 2012

Test Period : Jul 02, 2012 To Jul 05, 2012

# ( $\Pi$ ) RoHS Requirement:

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

Togt Item	Togt Mothod	Depositing Limit
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 <sup>6+</sup> ) 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.	
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

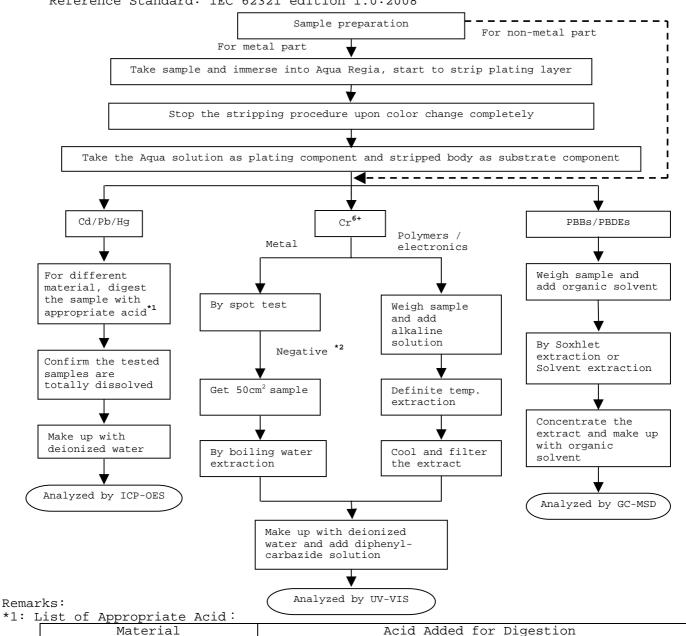
Remark: Reporting limit = Quantitation limit of analyte in sample



#### Test Conducted

#### (IV) Measurement Flowchart:

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



Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> ,HCl,HF
Electronics	HNO <sub>3,</sub> HCl,H <sub>2</sub> O <sub>2,</sub> HBF <sub>4</sub>

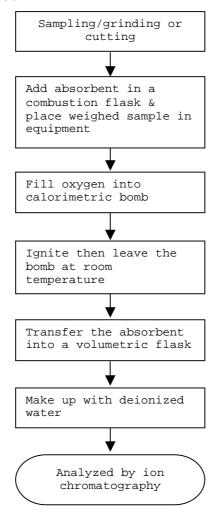
\*2: If the result of spot test is positive, Chromium VI would be determined as detected.



#### Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582

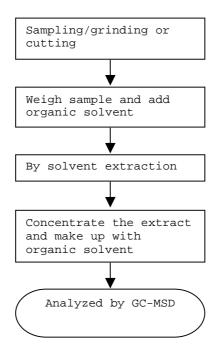




#### Test Conducted

# (IV) Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004



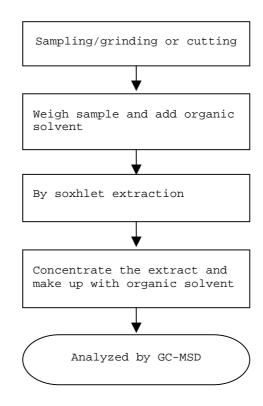


#### Test Conducted

#### (IV) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)

Reference Standard: USEPA 3540C



End of Report

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Test Conducted

# Photo







Test Report Number : TWNC00265156

Applicant: Littelfuse Philippines Inc.

Date : Jul 09, 2012

LIMA Technology Center, Lipa City,

Malvar, Batangas

Sample Description:

One (1) group of submitted samples said to be : Part Description : HOUSING COLORANT

Part Number : 057876

Date Sample Received : Jul 02, 2012 Date Test Started : Jul 02, 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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Page 1 of 9



# Test Conducted

# ( I ) Test Result Summary :

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



#### Test Conducted

# ( I ) Test Result Summary :

Test Item	Result (ppm)
	Red Plastic Pellets
Phthalates	<u>.</u>
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 : Jul 02, 2012

Test Period : Jul 02, 2012 To Jul 06, 2012

# ( $\Pi$ ) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr <sup>6+</sup> ) 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
Test Item		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 <sup>6+</sup> ) 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
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

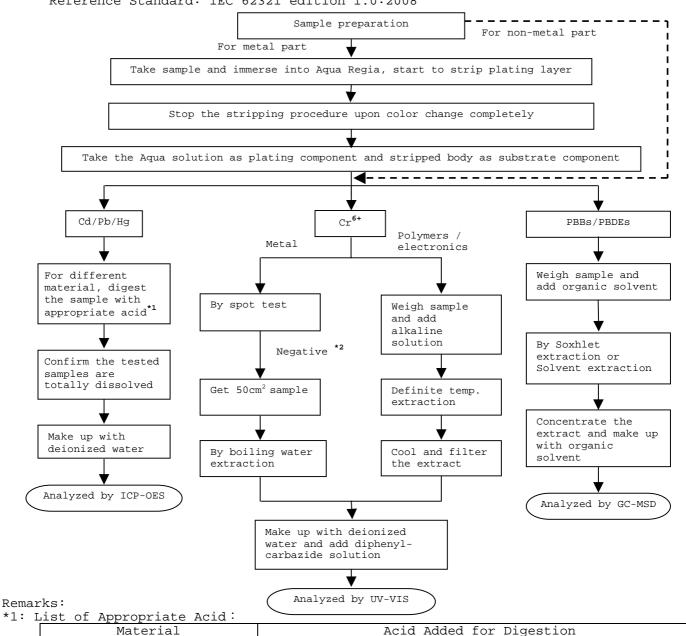
Remark: Reporting limit = Quantitation limit of analyte in sample



#### Test Conducted

#### (IV) Measurement Flowchart:

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



Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> ,HCl,HF
Electronics	HNO <sub>3,</sub> HCl,H <sub>2</sub> O <sub>2,</sub> HBF <sub>4</sub>

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



#### Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582

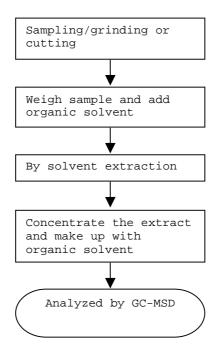
> Sampling/grinding or cutting Add absorbent in a combustion flask & place weighed sample in equipment Fill oxygen into calorimetric bomb Ignite then leave the bomb at room temperature Transfer the absorbent into a volumetric flask Make up with deionized water Analyzed by ion chromatography



#### Test Conducted

# (IV) Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004



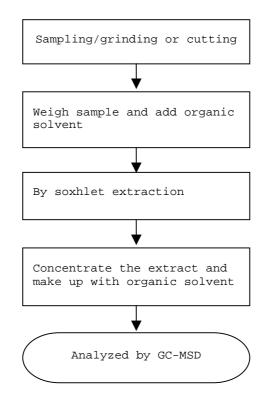


#### Test Conducted

#### (IV) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)

Reference Standard: USEPA 3540C



End of Report

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Test Conducted

# Photo







Test Report Number: TWNC00265157

Applicant: Littelfuse Philippines Inc.

Date : Jul 06, 2012

LIMA Technology Center, Lipa City,

Malvar, Batangas

Sample Description:

One (1) group of submitted samples said to be : Part Description : BROWN COLORANT

Part Number : 057878

Date Sample Received : Jul 02, 2012 Date Test Started : Jul 02, 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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# Test Conducted

# ( I ) Test Result Summary :

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



#### Test Conducted

# ( I ) Test Result Summary :

	Result (ppm)
Test Item	Brown Plastic
	Pellets
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 : Jul 02, 2012

Test Period : Jul 02, 2012 To Jul 05, 2012

# (II) RoHS Requirement:

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 <sup>6+</sup> ) 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 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 <sup>6+</sup> ) 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
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

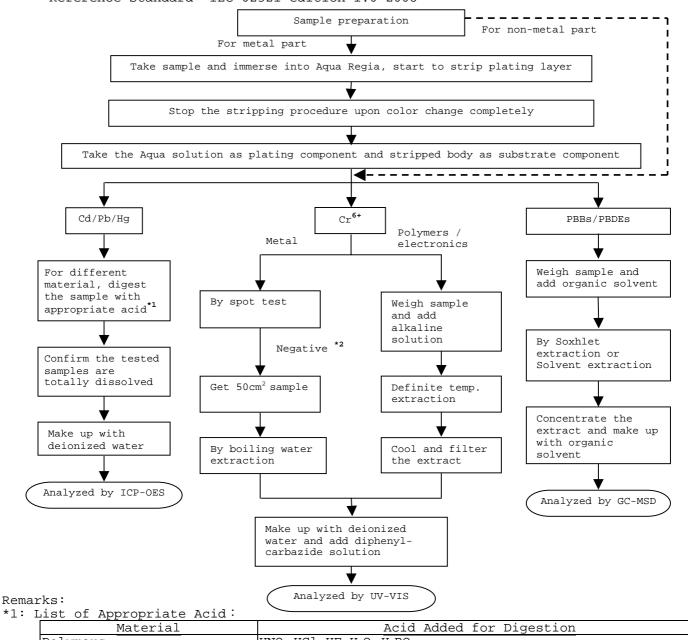
Remark: Reporting limit = Quantitation limit of analyte in sample



# Test Conducted

#### (IV) Measurement Flowchart:

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



dist of Appropriate Acid:	
Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3,</sub> HCl,HF
Electronics	HNO <sub>3</sub> HCl, H <sub>2</sub> O <sub>2</sub> HBF <sub>4</sub>

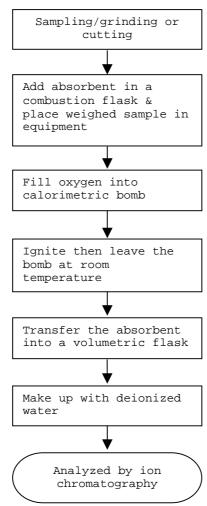
\*2: If the result of spot test is positive, Chromium VI would be determined as detected.



#### Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582

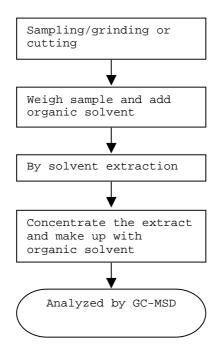




#### Test Conducted

# (IV) Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004



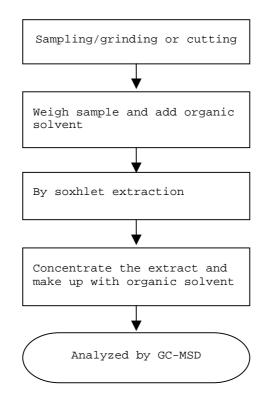


#### Test Conducted

#### (IV) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)

Reference Standard: USEPA 3540C



End of Report

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Test Conducted

# Photo







Test Report Number: TWNC00265158

Applicant: Littelfuse Philippines Inc. Date : Jul 06, 2012

LIMA Technology Center, Lipa City,

Malvar, Batangas

Sample Description:

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

Part Description : RED COLORANT

Part Number : 057879

Date Sample Received : Jul 02, 2012
Date Test Started : Jul 02, 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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Page 1 of 9



# Test Conducted

# ( I ) Test Result Summary :

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



#### Test Conducted

# ( I ) Test Result Summary :

Test Item	Result (ppm)
	Red Plastic Pellets
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 : Jul 02, 2012

Test Period : Jul 02, 2012 To Jul 05, 2012

# ( $\Pi$ ) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr <sup>6+</sup> ) 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 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 <sup>6+</sup> ) 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.	
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

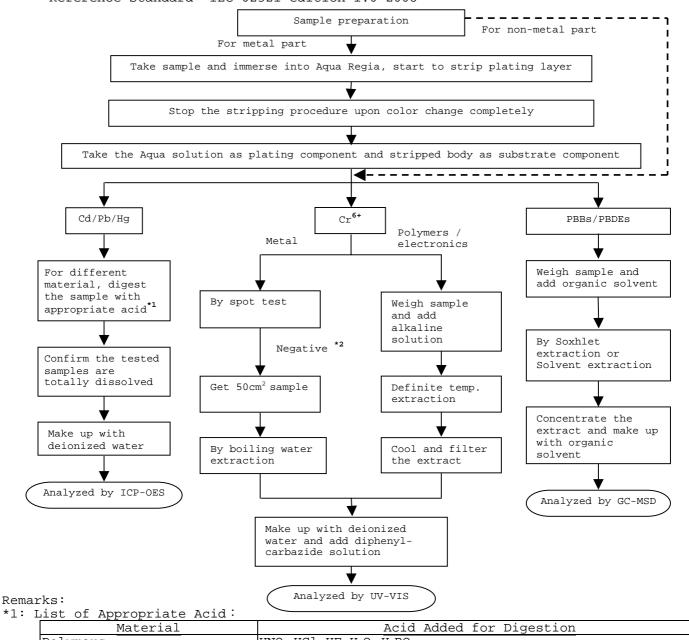
Remark: Reporting limit = Quantitation limit of analyte in sample



# Test Conducted

#### (IV) Measurement Flowchart:

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



hist of Appropriate Acid.	
Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3,</sub> HCl,HF
Electronics	HNO <sub>3</sub> HCl, H <sub>2</sub> O <sub>2</sub> HBF <sub>4</sub>

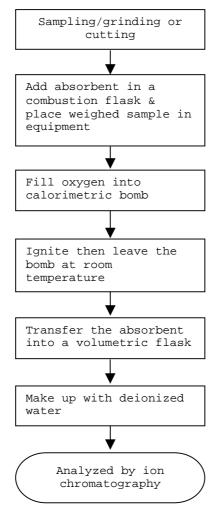
\*2: If the result of spot test is positive, Chromium VI would be determined as detected.



#### Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582

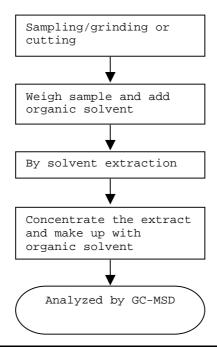




#### Test Conducted

# (IV) Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004



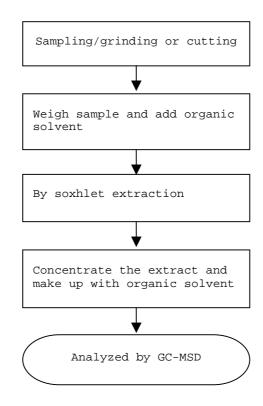


#### Test Conducted

#### (IV) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)

Reference Standard: USEPA 3540C



End of Report

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Test Conducted

# Photo







Test Report Number: TWNC00265159

Applicant: Littelfuse, Inc. Date : Jul 06, 2012

800 E. NORTHWEST HWY DESPLAINES IL 60016

Sample Description:

One (1) group of submitted samples said to be :
Part Description : YELLOW COLORANT

Part Number : 057881

Date Sample Received : Jul 02, 2012
Date Test Started : Jul 02, 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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Page 1 of 9



# Test Conducted

# ( I ) Test Result Summary :

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



#### Test Conducted

# ( I ) Test Result Summary :

(ppm)
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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 : Jul 02, 2012

Test Period : Jul 02, 2012 To Jul 05, 2012

#### (II) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd) Content	0.01% (100ppm)
Lead (Pb) Content	0.1% (1000ppm)
Mercury (Hg) Content	0.1% (1000ppm)
Chromium VI (Cr <sup>6+</sup> ) 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 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 <sup>6+</sup> ) 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.	
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

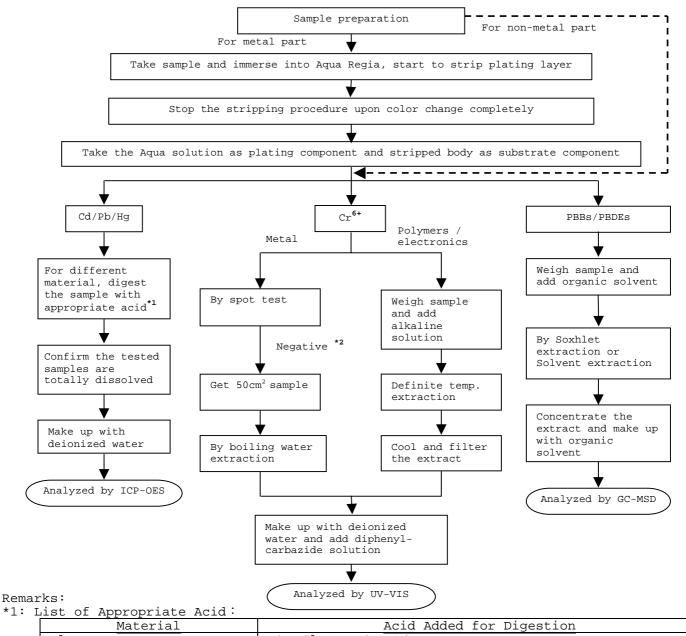
Remark: Reporting limit = Quantitation limit of analyte in sample



#### Test Conducted

#### (IV) Measurement Flowchart:

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



Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> ,HCl,HF
Electronics	HNO <sub>3,</sub> HCl,H <sub>2</sub> O <sub>2,</sub> HBF <sub>4</sub>

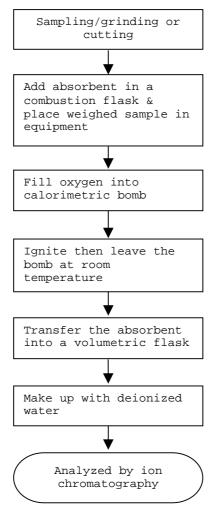
\*2: If the result of spot test is positive, Chromium VI would be determined as detected.



#### Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582

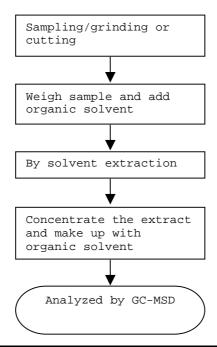




#### Test Conducted

# (IV) Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004



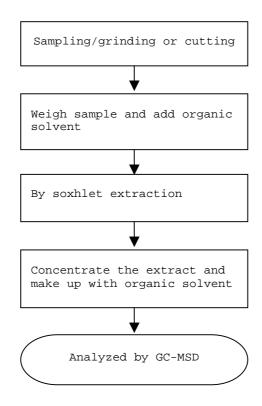


#### Test Conducted

#### (IV) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)

Reference Standard: USEPA 3540C



End of Report

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Test Conducted

# Photo







Test Report Number: TWNC00299230

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

> 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

: 057874 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) Test Result Summary:				
Test Item	<u>Unit</u>	Test Method	Result Dark gray plastic pellets	RL
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
Chromium VI (Cr <sup>6+</sup> ) Content	mqq	With reference to IEC 62321: 2008, by alkaline digestion and determined by UV-Vis Spectrophotometer.	ND	1
Polybrominated Biphenyls (PBBs	3)			
Monobrominated Biphenyls (MonoBB)	mqq		ND	5
Dibrominated Biphenyls (DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	mqq		ND	5
Tetrabrominated Biphenyls (TetraBB)	mqq	With reference to IEC 62321: 2008, by solvent	ND	5
Pentabrominated Biphenyls (PentaBB)	mqq	extraction and	ND	5
Hexabrominated Biphenyls (HexaBB)	mqq	determined by GC-MS and 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

			Result	
Test Item	<u>Unit</u>	<u>Test Method</u>	Dark gray plastic pellets	RL
Polybrominated Diphenyl Ethers	(PBDEs)		<u> </u>	
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	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm	62321: 2008, by solvent extraction and determined by GC-MS and	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm	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	l.			
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	ND	50
Bromine (Br)	ppm		ND	50
Iodine (I)	ppm	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





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 <sup>6+</sup> ) 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.

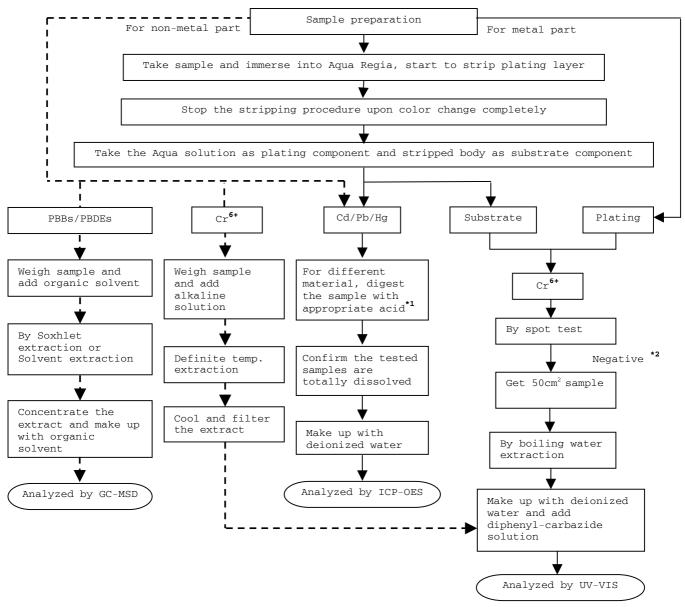




#### Test Conducted

#### (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 <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> ,HCl,HF
Electronics	HNO <sub>3</sub> ,HCl,H <sub>2</sub> O <sub>2</sub> ,HBF <sub>4</sub>

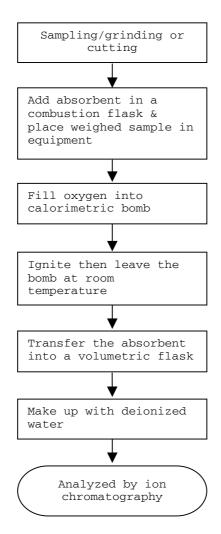
\*2: If the result of spot test is positive, Chromium VI would be determined as detected.





Test Conducted

Test for Halogen Content Reference Standard: EN 14582

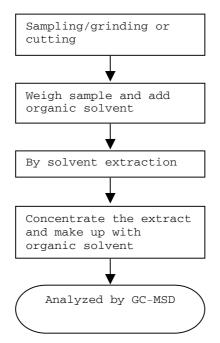






Test Conducted

Test For Phthalates Contents Reference Method: EN 14372: 2004

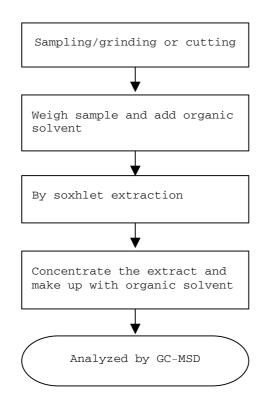






Test Conducted

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: TWNC00299229

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

> 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: : VYDYNE 21SP-C Nylon Part Description

: 057357 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:

Test Item	<u>Unit</u>	Test Method	Result Semitransparent plastic pellets	RL
Heavy Metal		1 771.1 6	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 <sup>6+</sup> ) Content	ppm	With reference to IEC 62321: 2008, by alkaline digestion and determined by UV-Vis Spectrophotometer.	ND	1





Test Conducted

			Result	
Test Item	<u>Unit</u>	Test Method	Semitransparent plastic pellets	RL
Polybrominated Biphenyls (PBBs)			<u> </u>	
Monobrominated Biphenyls	ppm		ND	5
(MonoBB) Dibrominated Biphenyls				
(DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	ppm	With reference to	ND	5
Tetrabrominated Biphenyls (TetraBB)	ppm	IEC 62321: 2008, by solvent	ND	5
Pentabrominated Biphenyls (PentaBB)	ppm	extraction and determined by GC-	ND	5
Hexabrominated Biphenyls (HexaBB)	ppm	MS and further HPLC-DAD	ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm	confirmation when necessary.	ND	5
Octabrominated Biphenyls (OctaBB)	ppm	Indeedbary.	ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5
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 reference to IEC 62321: 2008,	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm	by solvent extraction and determined by GC- MS and further HPLC-DAD confirmation when necessary.	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)	mqq		ND	5





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 calorimetric bomb	ND	50
Bromine (Br)	ppm	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

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

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

#### $(\Pi)$ Limit: RoHS Limit

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

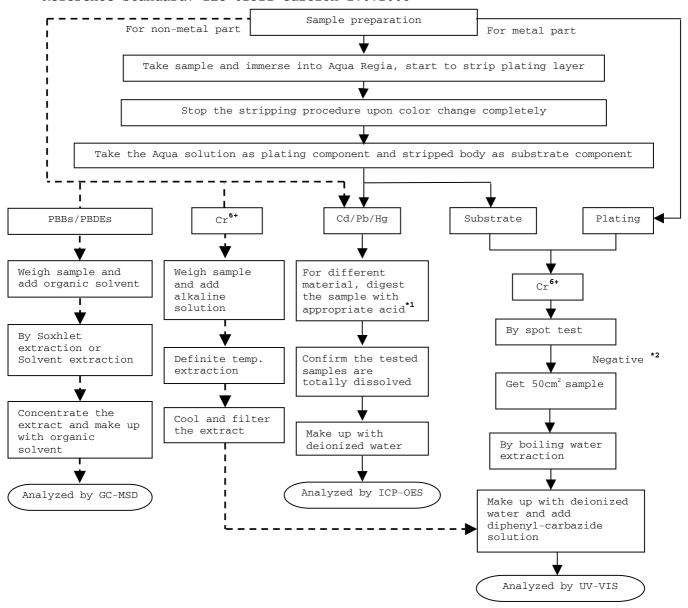




Test Conducted

#### (IV) Measurement Flowchart:

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







Test Conducted

Remarks:

\*1: List of Appropriate Acid:

Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3,</sub> HCl,HF
Electronics	HNO <sub>3</sub> ,HCl,H <sub>2</sub> O <sub>2</sub> ,HBF <sub>4</sub>

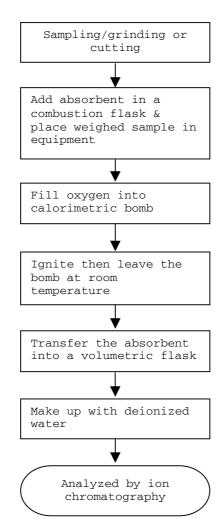
\*2: If the result of spot test is positive, Chromium VI would be determined as detected.





Test Conducted

Test for Halogen Content Reference Standard: EN 14582

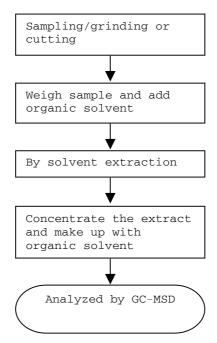






Test Conducted

Test For Phthalates Contents Reference Method: EN 14372: 2004

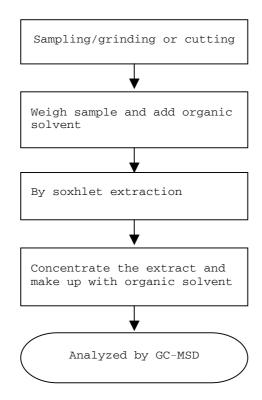






Test Conducted

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



End of Report

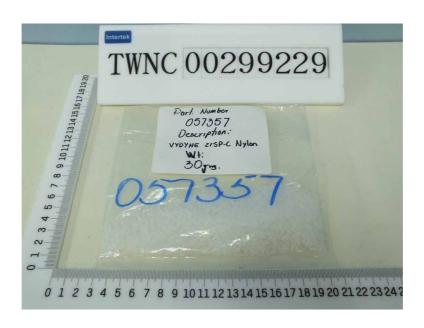
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Number: TWNC00299229 Test Conducted

#### Photo







# Intertek Testing Services Taiwan Ltd.



Test Report Number : TWNC00265160

Applicant: Littelfuse Philippines Inc.

LIMA Technology Center, Lipa City,

Malvar, Batangas

Sample Description:

One (1) group of submitted samples said to be : Part Description : GREEN COLORANT

Part Number : 057883

Date Sample Received : Jul 02, 2012 Date Test Started : Jul 02, 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 : Jul 06, 2012

Page 1 of 9



# Test Conducted

# ( I ) Test Result Summary :

Test Result Summary .	1
	Result (ppm)
<u>Test Item</u>	Green Plastic
	<u>Pellets</u>
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	ND
Mercury (Hg) content	ND
Chromium VI (Cr <sup>6+</sup> ) content	ND
Polybrominated Biphenyls (PBBs)	
Monobrominated Biphenyls (MonoBB)	ND
Dibrominated Biphenyls (DiBB)	ND
Tribrominated Biphenyls (TriBB)	ND
Tetrabrominated Biphenyls (TetraBB)	ND
Pentabrominated Biphenyls (PentaBB)	ND
Hexabrominated Biphenyls (HexaBB)	ND
Heptabrominated Biphenyls (HeptaBB)	ND
Octabrominated Biphenyls (OctaBB)	ND
Nonabrominated Biphenyls (NonaBB)	ND
Decabrominated Biphenyl (DecaBB)	ND
Polybrominated Diphenyl Ethers (PBDEs)	
Monobrominated Diphenyl Ethers (MonoBDE)	ND
Dibrominated Diphenyl Ethers (DiBDE)	ND
Tribrominated Diphenyl Ethers (TriBDE)	ND
Tetrabrominated Diphenyl Ethers (TetraBDE)	ND
Pentabrominated Diphenyl Ethers (PentaBDE)	ND
Hexabrominated Diphenyl Ethers (HexaBDE)	ND
Heptabrominated Diphenyl Ethers (HeptaBDE)	ND
Octabrominated Diphenyl Ethers (OctaBDE)	ND
Nonabrominated Diphenyl Ethers (NonaBDE)	ND
Decabrominated Diphenyl Ether (DecaBDE)	ND
Halogen Content	
Fluorine (F)	ND
Chlorine (Cl)	ND
Bromine (Br)	ND
Iodine (I)	ND



#### Test Conducted

# ( I ) Test Result Summary :

	Result (ppm)
Test Item	Green Plastic
	Pellets
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 : Jul 02, 2012

Test Period : Jul 02, 2012 To Jul 05, 2012

#### ( $\Pi$ ) RoHS Requirement:

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 <sup>6+</sup> ) 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 <sup>6+</sup> ) 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.	
Hexabromocyclododecane (HBCDD)	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD.	10 ppm

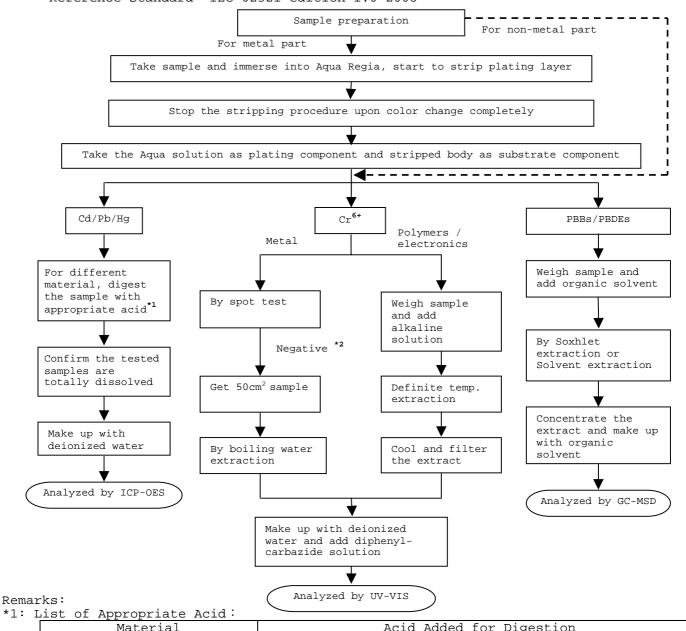
Remark: Reporting limit = Quantitation limit of analyte in sample



# Test Conducted

#### (IV) Measurement Flowchart:

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



dist of Appropriate Acid:	
Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> ,HCl,HF,H <sub>2</sub> O <sub>2</sub> ,H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3,</sub> HCl,HF
Electronics	HNO <sub>3</sub> HCl, H <sub>2</sub> O <sub>2</sub> HBF <sub>4</sub>

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



#### Test Conducted

(IV) Measurement Flowchart:

Test for Halogen Content Reference Standard: EN 14582

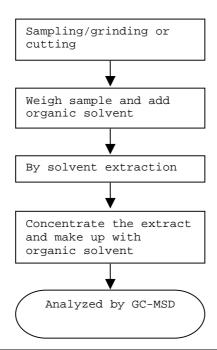
> Sampling/grinding or cutting Add absorbent in a combustion flask & place weighed sample in equipment Fill oxygen into calorimetric bomb Ignite then leave the bomb at room temperature Transfer the absorbent into a volumetric flask Make up with deionized water Analyzed by ion chromatography



#### Test Conducted

# (IV) Measurement Flowchart:

Test For Phthalates Contents Reference Method: EN 14372: 2004



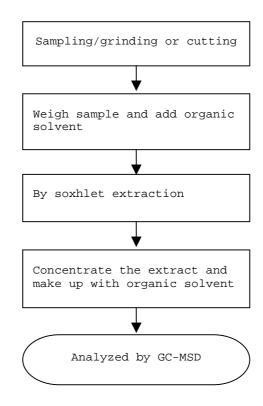


#### Test Conducted

#### (IV) Measurement Flowchart:

Test For Hexabromocyclododecane (HBCDD)

Reference Standard: USEPA 3540C



End of Report

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Test Conducted

# Photo



