



ICP Test Report Certification Packet

Company name: Littelfuse, Inc.
Product Series: Maxi Slo-Blo Blade Fuse
Product #: 999 Series
Issue Date: December 13, 2011

It is hereby certified by Littelfuse, Inc. that there is neither RoHS (EU Directive 2002/95/EC)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes. In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by: 
KRISTEEN BACILA

<Global EHS Engineer>

(1) Parts, sub-materials and unit parts

This document covers the Maxi Slo-Blo Blade Fuse Series RoHS-Compliant series products manufactured by Littelfuse, Inc.

< Raw Materials Used

Please see Table 1

(2) The ICP data on all measurable substances

Please see appropriate pages as identified in Table 1

Remarks :



Table 1: List of Raw Materials covered by this report

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	999000-503	Housing	3-11
2	425484	Foil	12-18
3	057357	Housing - Basic Material	19-23
4	057884	Colorant	24-28
5	955410	Zinc Element	29-33
6	692536	Solder	34-38



Test Report

Number : TWNC00235728

Applicant: Littelfuse, S.A. de C.V.
Blvd. Fausto Z. Martinez #1800
Col. Magisterio Seccion 38 C.P.
26070 Piedra Negras, Coahuila, Mexico

Date : Dec 08, 2011

Sample Description:

One (1) group of submitted samples said to be :
Part Description : MAXI HOUSING
Part Number : 999000-503
Date Sample Received : Dec 06, 2011
Date Test Started : Dec 06, 2011

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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approval of the laboratory.



Number : TWNC00235728

Test Conducted

(I) Test Result Summary :

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



Number : TWNC00235728

Test Conducted

(I) Test Result Summary :

<u>Test Item</u>	<u>Result (ppm)</u>
	<u>Orange Plastic</u>
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 : Dec 06, 2011

Test Period : Dec 06, 2011 To Dec 08, 2011

(II) RoHS Requirement:

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

The above limits were quoted from 2002/95/EC and amendment 2005/618/EC for homogeneous material.

Test Conducted

(III) Test Method:

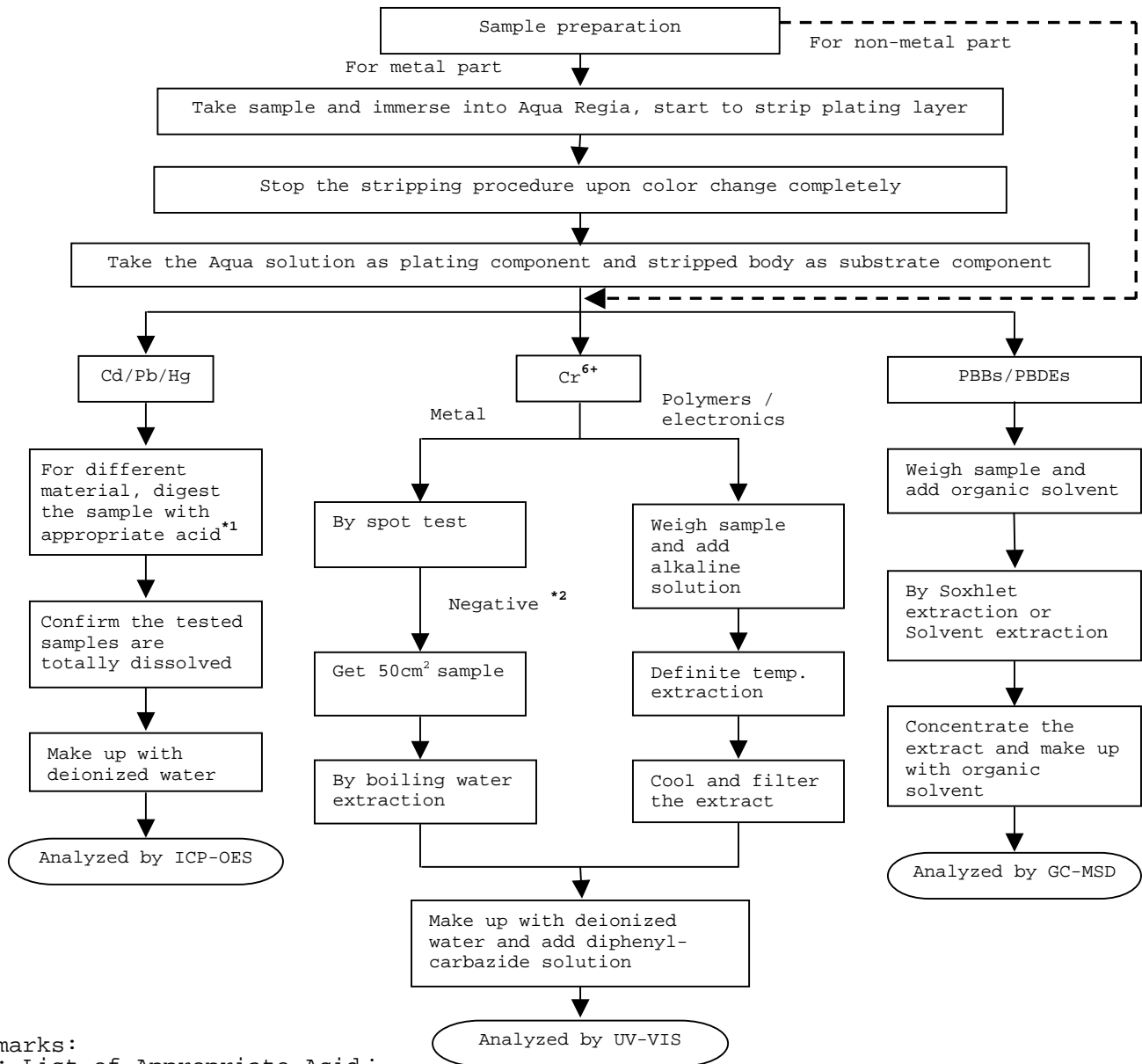
<u>Test Item</u>	<u>Test Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008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



Remarks:

*1: List of Appropriate Acid:

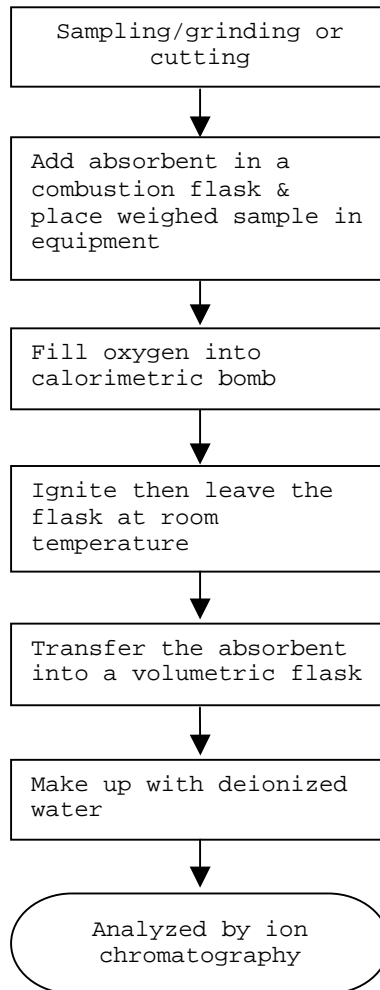
Material	Acid Added for Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

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

Test Conducted

(IV) Measurement Flowchart:

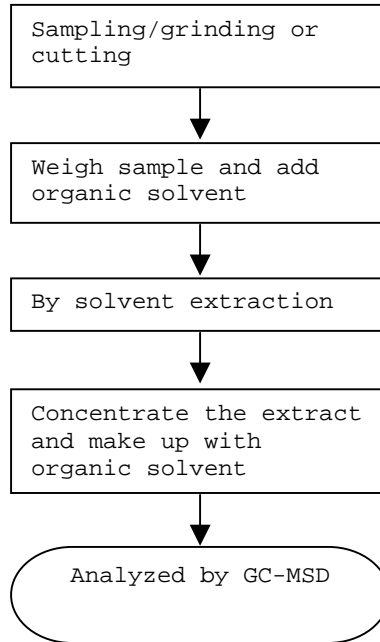
Test for Halogen Content
Reference Standard : EN 14582



Test Conducted

(IV) Measurement Flowchart:

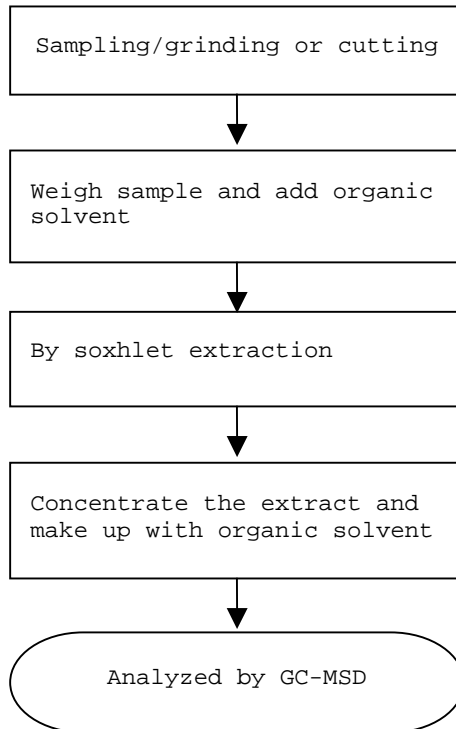
Test For Phthalates Contents
Reference Method: EN 14372: 2004



Test Conducted

(IV) Measurement Flowchart:

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



End of Report

Test Conducted

Photo



RESULTS REPORT
INTERTEK TESTING SERVICES
DE MEXICO SA DE CV
LABORATORIO CD. DE MEXICO

DELIVER TO:

Littelfuse, S.A. de C.V.
Blvd. Fausto Z. Martínez 1800, Col. Magisterio Sección 38,
Piedras Negras, Coahuila

ATTENTION: Ing. María Valdez

000001



Report No.: MX11-1400
Date : 2011-07-12

TEST REPORT

APPLICANT

Littelfuse, S.A. de C.V.
Blvd. Fausto Z. Martínez 1800, Col. Magisterio Sección 38, Piedras Negras, Coahuila
Ing. María Valdez

SAMPLE DESCRIPTION

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

Sample Description NP
Item No. 1) PN 425484 Foil

Country of Origin NP
Buyer's Name NP
Supplier's Name NP
Date sample received 2011-06-27
Testing period 2011-06-28 to 2011-07-11

TEST CONDUCTED

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

CONCLUSION

<u>Sample Number</u>	<u>Testing item</u>	<u>Conclusion</u>	<u>Failed component</u>	<u>Failed result</u>
1	PN 425484 Foil	Pass See Result summary	---	---

000002

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Intertek Testing Services de México, S.A. de C.V.
Poniente 134 No. 680, Col. Industrial Vallejo
C.P. 02300, Del. Azcapotzalco, México, D.F. Tel.: 50912150
www.intertek.com



TEST CONDUCTED

Samples:

- 1) PN 425484 Foil

TEST RESULT SUMMARY FOR RoHS DIRECTIVE :

TESTING ITEM	Ω RESULT (ppm)	Limit
	(1)	
Cadmium (Cd) content	ND	0,01% (100 ppm)
Lead (Pb) content	ND	0,1% (1000 ppm)
Mercury (Hg) content	ND	0,1% (1000 ppm)
Chromium (VI) (Cr ⁶⁺)	ND	0,1% (1000 ppm)
POLYBROMINATED BIPHENYLS (PBBs) Total	ND	0,1% (1000 ppm)
Monobromobiphenyl (MonoBB)	ND	---
Dibromobiphenyl (DiBB)	ND	---
Tribromobiphenyl (TriBB)	ND	---
Tetrabromobiphenyl (TetraBB)	ND	---
Pentabromobiphenyl (PentaBB)	ND	---
Hexabromobiphenyl (HexaBB)	ND	---
Heptabromobiphenyl (HeptaBB)	ND	---
Octabromobiphenyl (OctaBB)	ND	---
Nonabromobiphenyl (NonaBB)	ND	---
Decabromobiphenyl (DecaBB)	ND	---
POLYBROMINATED DIPHENYL ETHERS (PBDEs) Total	ND	0,1% (1000 ppm)
Monobromodiphenyl (MonoBDE)	ND	---
Dibromodiphenyl (DiBDE)	ND	---
Tribromodiphenyl (TriBDE)	ND	---
Tetrabromodiphenyl (TetraBDE)	ND	---
Pentabromodiphenyl (PentaBDE)	ND	---
Hexabromodiphenyl (HexaBDE)	ND	---
Heptabromodiphenyl (HeptaBDE)	ND	---
Octabromodiphenyl (OctaBDE)	ND	---
Nonabromodiphenyl (NonaBDE)	ND	---
Decabromodiphenyl (DecaBDE)	ND	---

000003

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www.intertek.com



TEST CONDUCTED

Samples:

- 1) PN 425484 Foil

TEST RESULT SUMMARY FOR RoHS DIRECTIVE :

TESTING ITEM	▲ RESULT (ppm)
	(1)
Fluor (F) content	ND
Chlorine (Cl) content	15 517
Bromine (Br) content	ND
Iodine (I) content	ND

ppm = parts per million based on dry weight of sample.

 $\mu\text{g}/\text{cm}^2$ = microgram per square centimeter.mg/kg WITH 50cm² = milligram per kilogram with 50 square centimeter.

< = less than.

ND = Not detected.

The above limits were quoted from 2002/95/EC and amendment 2005/618/EC for homogeneous material.

These Accreditations only apply for the methods listed in such. Not accredited under EMA Ω .

Prepared and checked by :

For Intertek

Irma López
[Signature]
[Signature]

Laboratory Manager

The Official Mexican Standard NOM-008-SCFI-1993 establishes like separator decimal the comma (,).

NOTE :DecaBDE IN POLYMERIC APPLICATIONS IS EXEMPTED ACCORDING TO ROHS DIRECTIVE AMENDMENT 2005/717/EC.

=ACCORDING TO IEC 62321, A POSITIVE RESULT INDICATES THE PRESENCE OF Cr(VI) COATING. IT IS THE Cr(VI) CONCENTRATION DETECTED IN THE BOILING-WATER-EXTRACTION SOLUTION AND SHOULD NOT BE INTERPRETED AS THE Cr(VI) CONCENTRATION IN THE COATING LAYER OF THE SAMPLE.

REMARK : AS REQUESTED BY THE APPLICANT, COATING WITH BASE MATERIAL OF TESTED COMPONENTS OF THE SAMPLE MX11-1400-01 WERE TESTED TOGETHER.

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Poniente 134 No. 660, Col. Industrial Vallejo
 C.P. 02300, Del. Azcapotzalco, México, D.F. Tel.: 50912150
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[Signature]

Test method :

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
1	Chromium VI (Cr ⁶⁺) content	With reference to USEPA 3060, by EPA 7196	QHU2010-61p87	2011-07-05	MELA	20,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
1	POLYBROMINATE D BIPHENYLS (PBBs)	Determined by GC-MSD	2011-000415-PCL	2011-07-11	▲ CONT	50,0
1	POLYBROMINATE D DIPHENYL ETHERS (PBDEs)	Determined by GC-MSD	2011-000415-PCL	2011-07-11	▲ CONT	50,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
1	Fluor	With reference to EN 14582:2007by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000415-PCL	2011-07-11	▲ CONT	30
1	Chlorine	With reference to EN 14582:2007by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000415-PCL	2011-07-11	▲ CONT	30
1	Bromine	With reference to EN 14582:2007by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000415-PCL	2011-07-11	▲ CONT	30
1	Iodine	With reference to EN 14582:2007by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000415-PCL	2011-07-11	▲ CONT	30

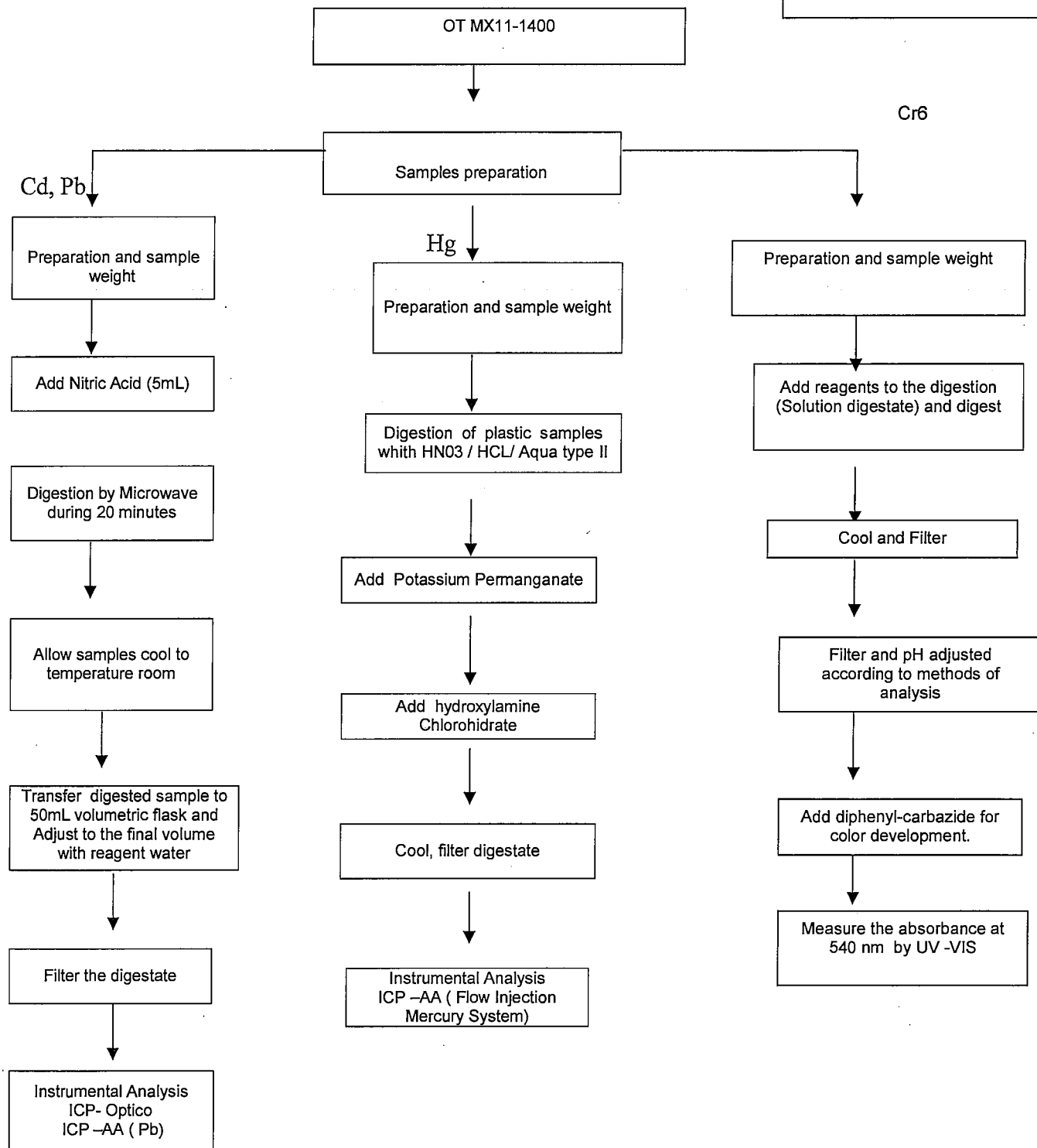
Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
1	Lead (Pb) content	With reference to USEPA 3052, by EPA 6010	MET2011-12p24	2011-06-29	MARY	5,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
1	Cadmium (Cd) content	With reference to USEPA 3052, by EPA 6010	MET2011-12p24	2011-06-29	MARY	2,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
1	Mercury (Hg) content	With reference to USEPA 7471 by USEPA 7471	MET2011-12p26	2011-07-01	RNC	0,25

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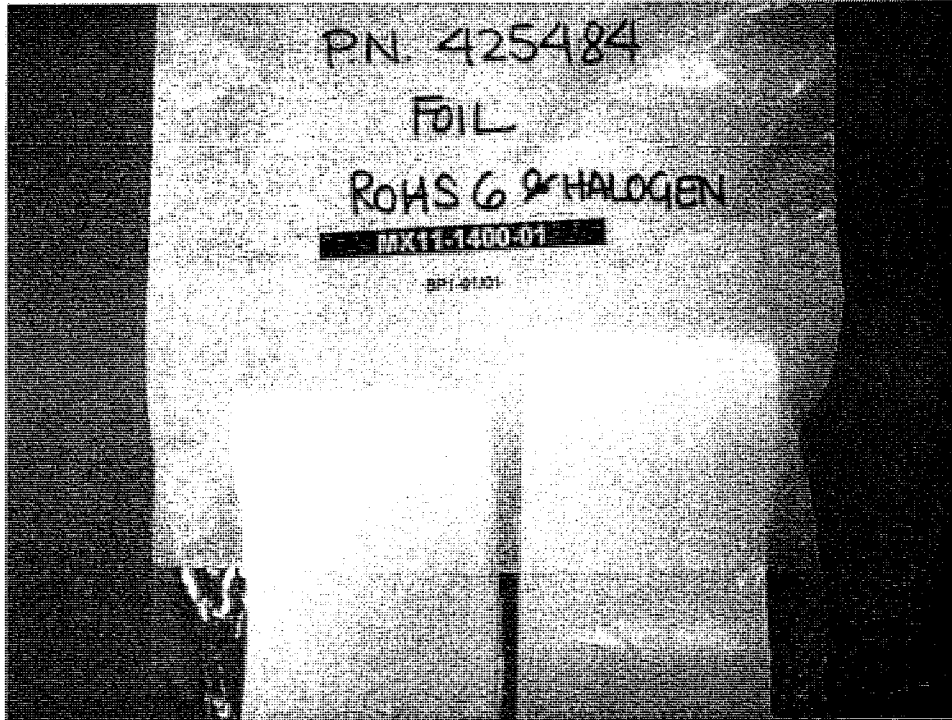
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000007

RESULTS REPORT

INTERTEK TESTING SERVICES

DE MEXICO SA DE CV

LABORATORIO CD. DE MEXICO

DELIVER TO:

Littelfuse, S.A. de C.V.
Bvd. Fausto Z. Martínez 1800, Col. Magisterio Sección 38,
Piedras Negras, Coahuila

ATTENTION: **Ing. María Valdez**



Report No.: MX11-1035-04
Date : 2011-06-15

TEST REPORT

APPLICANT

Littelfuse, S.A. de C.V.
Blvd. Fausto Z. Martínez 1800, Col. Magisterio Sección 38, Piedras Negras, Coahuila
Ing. María Valdez

SAMPLE DESCRIPTION

One (1) group of submitted samples said to be :
Sample Description Series 287,999
Item No. 4) N/P 057357 Housing Molding Resine
Country of Origin NP
Buyer's Name NP
Supplier's Name NP
Date sample received 2011-05-19
Testing period 2011-05-23 to 2011-06-09

TEST CONDUCTED

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

CONCLUSION

<u>Sample Number</u>	<u>Testing item</u>	<u>Conclusion</u>	<u>Failed component</u>	<u>Failed result</u>
4	N/P 057257 Housing Resine	Pass See Result summary	---	---

TEST CONDUCTED

Samples:

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4) N/P 057857 Housing Molding Resine

TEST RESULT SUMMARY FOR RoHS DIRECTIVE :

TESTING ITEM	Ω RESULT (ppm)	Limit
	(4)	
Cadmium (Cd) content	ND	0,01% (100 ppm)
Lead (Pb) content	9,188	0,1% (1000 ppm)
Mercury (Hg) content	ND	0,1% (1000 ppm)
Chromium (VI) (Cr ⁶⁺)	ND	0,1% (1000 ppm)
POLYBROMINATED BIPHENYLS (PBBs) Total	ND	0,1% (1000 ppm)
Monobromobiphenyl (MonoBB)	ND	---
Dibromobiphenyl (DiBB)	ND	---
Tribromobiphenyl (TriBB)	ND	---
Tetrabromobiphenyl (TetraBB)	ND	---
Pentabromobiphenyl (PentaBB)	ND	---
Hexabromobiphenyl (HexaBB)	ND	---
Heptabromobiphenyl (HeptaBB)	ND	---
Octabromobiphenyl (OctaBB)	ND	---
Nonabromobiphenyl (NonaBB)	ND	---
Decabromobiphenyl (DecaBB)	ND	---
POLYBROMINATED DIPHENYL ETHERS (PBDEs) Total	ND	0,1% (1000 ppm)
Monobromodiphenyl (MonoBDE)	ND	---
Dibromodiphenyl (DiBDE)	ND	---
Tribromodiphenyl (TriBDE)	ND	---
Tetrabromodiphenyl (TetraBDE)	ND	---
Pentabromodiphenyl (PentaBDE)	ND	---
Hexabromodiphenyl (HexaBDE)	ND	---
Heptabromodiphenyl (HeptaBDE)	ND	---
Octabromodiphenyl (OctaBDE)	ND	---
Nonabromodiphenyl (NonaBDE)	ND	---
Decabromodiphenyl (DecaBDE)	ND	---

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Poniente 134 No. 660, Col. Industrial Vallejo
C.P. 02300, Del. Azcapotzalco, México, D.F. Tel.: 50912150

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Report No.: MX11-1035-04

Date : 2011-06-15

TESTING ITEM	▲ RESULT (ppm)
	(4)
Fluor (F) content	ND
Chlorine (Cl) content	ND
Bromine (Br) content	ND
Iodine (I) content	ND

ppm = parts per million based on dry weight of sample.

$\mu\text{g}/\text{cm}^2$ = microgram per square centimeter.

$\text{mg}/\text{kg WITH } 50\text{cm}^2$ = milligram per kilogram with 50 square centimeter.

< = less than.

ND = Not detected.

The above limits were quoted from 2002/95/EC and amendment 2005/618/EC for homogeneous material.

These Accreditations only apply for the methods listed in such. Not accredited under EMA Ω .

Prepared and checked by :

For Intertek

Laboratory Manager

The Official Mexican Standard NOM-008-SCFI-1993 establishes like separator decimal the comma (,).

NOTE :DecaBDE IN POLYMERIC APPLICATIONS IS EXEMPTED ACCORDING TO ROHS DIRECTIVE AMENDMENT 2005/717/EC.

=ACCORDING TO IEC 62321, A POSITIVE RESULT INDICATES THE PRESENCE OF Cr(VI) COATING. IT IS THE Cr(VI) CONCENTRATION DETECTED IN THE BOILING-WATER-EXTRACTION SOLUTION AND SHOULD NOT BE INTERPRETED AS THE Cr(VI) CONCENTRATION IN THE COATING LAYER OF THE SAMPLE.

REMARK : AS REQUESTED BY THE APPLICANT, COATING WITH BASE MATERIAL OF TESTED COMPONENTS OF THE SAMPLE MX11-1035-04 WERE TESTED TOGETHER.

Test method :

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ILTA/003/GENS-F8

Intertek Testing Services de México, S.A. de C.V.

Poniente 134 No. 660, Col. Industrial Vallejo

C.P. 02300, Del. Azcapotzalco, México, D.F. Tel.: 50912150

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Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
4	Chromium VI (Cr ⁶⁺) content	With reference to USEPA 3060, by EPA 7196	QHU2010-61p76,78	2011-05-26	MELA	20,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
4	POLYBROMINATE D BIPHENYLS (PBBs)	Determined by GC-MSD	2011-000307-PCL	2011-06-09	▲ CONT	50,0
4	POLYBROMINATE D DIPHENYL ETHERS (PBDEs)	Determined by GC-MSD	2011-000307-PCL	2011-06-09	▲ CONT	50,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
4	Lead (Pb) content	With reference to USEPA 3052, by EPA 6010	MET2010-40p144	2011-05-26	MARY	5,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
4	Cadmium (Cd) content	With reference to USEPA 3052, by EPA 6010	MET2010-40p144	2011-05-26	MARY	2,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
4	Mercury (Hg) content	With reference to USEPA 7471 by USEPA 7471	MET2010-40p139	2010-05-23	RNC	0,25

Sample Number	Testing item	▲ Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
4	Fluor	With reference to EN 14582:2007 by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000307-PCL	2011-06-09	▲ CONT	30
4	Chlorine	With reference to EN 14582:2007 by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000307-PCL	2011-06-09	▲ CONT	30
4	Bromine	With reference to EN 14582:2007 by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000307-PCL	2011-06-09	▲ CONT	30
4	Iodine	With reference to EN 14582:2007 by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000307-PCL	2011-06-09	▲ CONT	30

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ILTA/003/GENS-F8

Intertek Testing Services de México, S.A. de C.V.

Poniente 134 No. 660, Col. Industrial Vallejo
C.P. 02300, Del. Azcapotzalco, México, D.F. Tel.: 50912150

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RESULTS REPORT

INTERTEK TESTING SERVICES

DE MEXICO SA DE CV

LABORATORIO CD. DE MEXICO

DELIVER TO:

Littelfuse, S.A. de C.V.
Bvd. Fausto Z. Martínez 1800, Col. Magisterio Sección 38,
Piedras Negras, Coahuila

ATTENTION: **Ing. María Valdez**



Report No.: MX11-1037-02
Date : 2011-06-16

TEST REPORT

APPLICANT

Littelfuse, S.A. de C.V.
Blvd. Fausto Z. Martínez 1800, Col. Magisterio Sección 38, Piedras Negras, Coahuila
Ing. María Valdez

SAMPLE DESCRIPTION

One (1) group of submitted samples said to be :
Sample Description Series:-899,257,287,299 y -299/895
Item No. 2) Serie 257,999,287,299 N/P 057884 Colorant Orange
Country of Origin NP
Buyer's Name NP
Supplier's Name NP
Date sample received 2011-05-19
Testing period 2011-05-23 to 2011-06-09

TEST CONDUCTED

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

CONCLUSION

<u>Sample Number</u>	<u>Testing item</u>	<u>Conclusion</u>	<u>Failed component</u>	<u>Failed result</u>
2	Serie 257,999,287,299 N/P 057884 Colorant Orange	Pass See Result summary	---	---

TEST CONDUCTED

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Poniente 134 No. 660, Col. Industrial Vallejo
C.P. 02300, Del. Azcapotzalco, México, D.F. Tel.: 50912150

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Samples:

2) Serie 257,999,287,299 N/P 057884 Colorant Orange

TEST RESULT SUMMARY FOR RoHS DIRECTIVE :

TESTING ITEM	Ω RESULT (ppm)	Limit
	(2)	
Cadmium (Cd) content	ND	0,01% (100 ppm)
Lead (Pb) content	ND	0,1% (1000 ppm)
Mercury (Hg) content	ND	0,1% (1000 ppm)
Chromium (VI) (Cr ⁶⁺)	ND	0,1% (1000 ppm)
POLYBROMINATED BIPHENYLS (PBBs) Total	ND	0,1% (1000 ppm)
Monobromobiphenyl (MonoBB)	ND	---
Dibromobiphenyl (DiBB)	ND	---
Tribromobiphenyl (TriBB)	ND	---
Tetrabromobiphenyl (TetraBB)	ND	---
Pentabromobiphenyl (PentaBB)	ND	---
Hexabromobiphenyl (HexaBB)	ND	---
Heptabromobiphenyl (HeptaBB)	ND	---
Octabromobiphenyl (OctaBB)	ND	---
Nonabromobiphenyl (NonaBB)	ND	---
Decabromobiphenyl (DecaBB)	ND	---
POLYBROMINATED DIPHENYL ETHERS (PBDEs) Total	ND	0,1% (1000 ppm)
Monobromodiphenyl (MonoBDE)	ND	---
Dibromodiphenyl (DiBDE)	ND	---
Tribromodiphenyl (TriBDE)	ND	---
Tetrabromodiphenyl (TetraBDE)	ND	---
Pentabromodiphenyl (PentaBDE)	ND	---
Hexabromodiphenyl (HexaBDE)	ND	---
Heptabromodiphenyl (HeptaBDE)	ND	---
Octabromodiphenyl (OctaBDE)	ND	---
Nonabromodiphenyl (NonaBDE)	ND	---
Decabromodiphenyl (DecaBDE)	ND	---

TESTING ITEM	▲ RESULT (ppm)
--------------	----------------

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Report No.: MX11-1037-02
Date : 2011-06-16

	(2)
Fluor (F) content	ND
Chlorine (Cl) content	2 245
Bromine (Br) content	ND
Iodine (I) content	ND

ppm = parts per million based on dry weight of sample.

$\mu\text{g}/\text{cm}^2$ = microgram per square centimeter.

mg/kg WITH 50cm^2 = milligram per kilogram with 50 square centimeter.

< = less than.

ND = Not detected.

The above limits were quoted from 2002/95/EC and amendment 2005/618/EC for homogeneous material.

These Accreditations only apply for the methods listed in such. Not accredited under EMA Ω .

Prepared and checked by :

For Intertek

Laboratory Manager

The Official Mexican Standard NOM-008-SCFI-1993 establishes like separator decimal the comma (,).

NOTE :DecaBDE IN POLYMERIC APPLICATIONS IS EXEMPTED ACCORDING TO ROHS DIRECTIVE AMENDMENT 2005/717/EC.

=ACCORDING TO IEC 62321, A POSITIVE RESULT INDICATES THE PRESENCE OF Cr(VI) COATING. IT IS THE Cr(VI) CONCENTRATION DETECTED IN THE BOILING-WATER-EXTRACTION SOLUTION AND SHOULD NOT BE INTERPRETED AS THE Cr(VI) CONCENTRATION IN THE COATING LAYER OF THE SAMPLE.

REMARK : AS REQUESTED BY THE APPLICANT, COATING WITH BASE MATERIAL OF TESTED COMPONENTS OF THE SAMPLE MX11-1037-02 WERE TESTED TOGETHER.

Test method :

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Poniente 134 No. 660, Col. Industrial Vallejo

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Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
2	Chromium VI (Cr ⁶⁺) content	With reference to USEPA 3060, by EPA 7196	QHU2010-61p76,78	2011-05-26	MELA	20,0

0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
2	POLYBROMINATED BIPHENYLS (PBBs)	Determined by GC-MSD	2011-000307-PCL	2011-06-09	▲ CONT	50,0
2	POLYBROMINATED DIPHENYL ETHERS (PBDEs)	Determined by GC-MSD	2011-000307-PCL	2011-06-09	▲ CONT	50,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
2	Lead (Pb) content	With reference to USEPA 3052, by EPA 6010	MET2010-40p144	2011-05-26	MARY	5,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
2	Cadmium (Cd) content	With reference to USEPA 3052, by EPA 6010	MET2010-40p144	2011-05-26	MARY	2,0

Sample Number	Testing item	Ω Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
2	Mercury (Hg) content	With reference to USEPA 7471 by USEPA 7471	MET2010-40p139	2010-05-23	RNC	0,25

Sample Number	Testing item	▲ Testing method	Quality control Batch:	Analysis Date:	Analyzed By:	Reporting limit ppm
2	Fluor	With reference to EN 14582:2007 by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000307-PCL	2011-06-09	▲ CONT	30
2	Chlorine	With reference to EN 14582:2007 by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000307-PCL	2011-06-09	▲ CONT	30
2	Bromine	With reference to EN 14582:2007 by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000307-PCL	2011-06-09	▲ CONT	30
2	Iodine	With reference to EN 14582:2007 by calorimetric bomb method with oxygen and determined by ion chromatography	2011-000307-PCL	2011-06-09	▲ CONT	30

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Poniente 134 No. 660, Col. Industrial Vallejo
C.P. 02300, Del. Azcapotzalco, México, D.F. Tel.: 50912150

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Test Report

Number : TWNC00235729

Applicant: Littelfuse, S.A. de C.V.
Blvd. Fausto Z. Martinez #1800
Col. Magisterio Seccion 38 C.P.
26070 Piedra Negras, Coahuila,
Mexico

Date : Dec 09, 2011

Sample Description:

One (1) group of submitted samples said to be :
Part Description : COPPER HARDENED ZINC
Part Number : 955410
Date Sample Received : Dec 06, 2011
Date Test Started : Dec 06, 2011

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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Number : TWNC00235729

Test Conducted

(I) Test Result Summary :

<u>Test Item</u>	<u>Result (ppm)</u>
	<u>Silvery Metal</u>
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	23
Mercury (Hg) content	ND
Chromium VI (Cr ⁶⁺) content (mg/kg with 50cm ²)	Negative (< 0.02)

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg
ND = Not detected
< = Less than
mg/kg with 50cm² = milligram per kilogram with 50 square centimetre
Negative = A negative test result indicated positive observation was not found at the time of Test.

Responsibility of Chemist : Irene Chiou / Kevin Liu

Date Sample Received : Dec 06, 2011

Test Period : Dec 06, 2011 To Dec 09, 2011

(II) RoHS Requirement:

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

The above limits were quoted from 2002/95/EC and amendment 2005/618/EC for homogeneous material.



Number : TWNC00235729

Test Conducted

(III) Test Method:

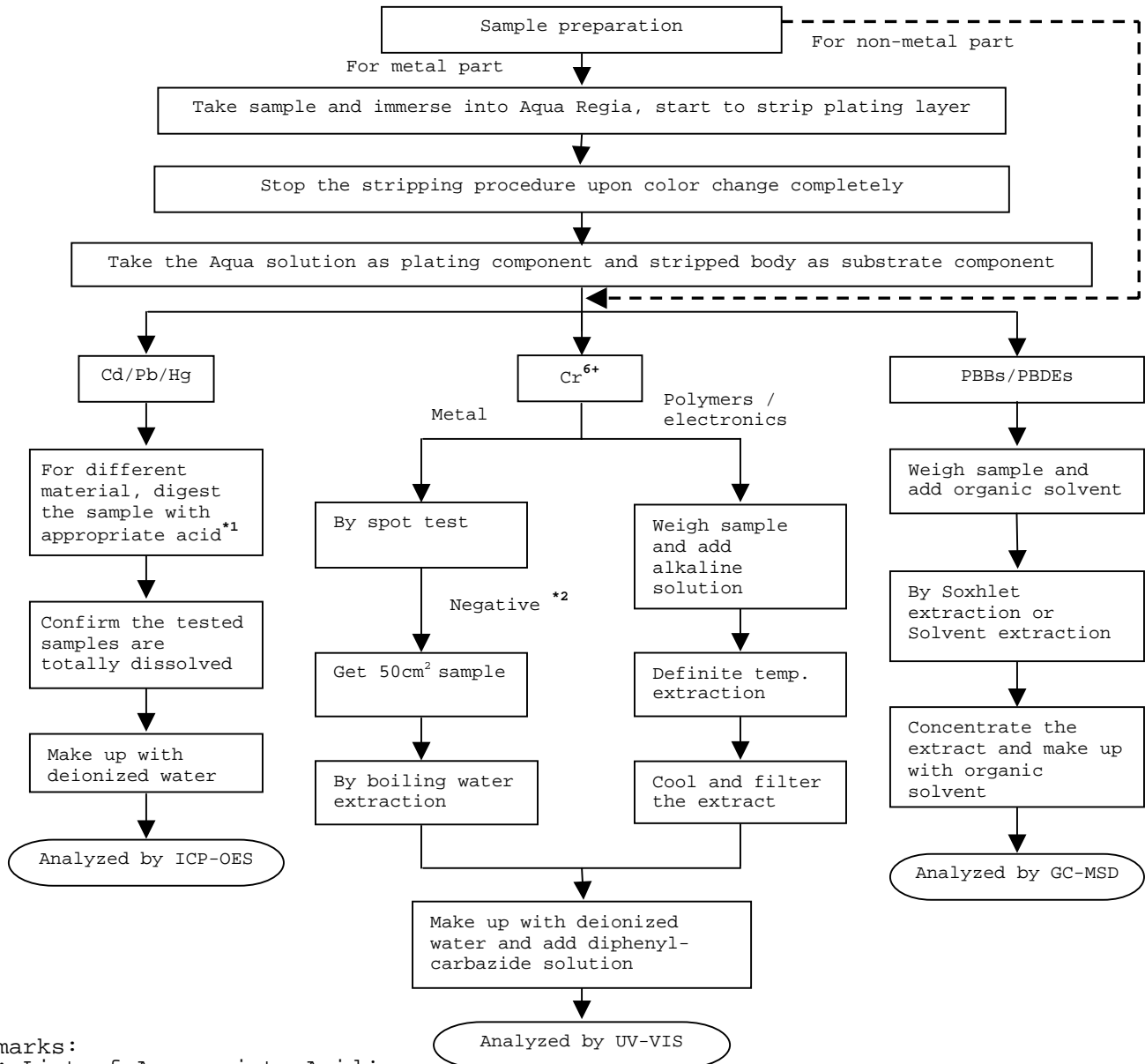
<u>Test Item</u>	<u>Test Method</u>	<u>Reporting Limit</u>
Cadmium (Cd) content	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES.	2 ppm
Lead (Pb) content	With reference to IEC 62321 edition 1.0:2008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

Remark: Reporting limit = Quantitation limit of analyte in sample

Test Conducted

(IV) Measurement Flowchart:

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



Remarks:

*1: List of Appropriate Acid:

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

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

End of Report

Test Conducted

Photo





Test Report

Number : TWNC00234714

Applicant: Littelfuse, S.A. de C.V.
Blvd. Fausto Z. Martinez #1800
Col. Magisterio Seccion 38 C.P.
26070 Piedra Negras, Coahuila,
Mexico

Date : Dec 01, 2011

Sample Description:

One (1) group of submitted samples said to be :
Part Description : SOLID CORE SOLDER
Part Number : 692536
Date Sample Received : Nov 28, 2011
Date Test Started : Nov 29, 2011

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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Number : TWNC00234714

Test Conducted

(I) Test Result Summary :

<u>Test Item</u>	<u>Result (ppm)</u>
	<u>Silvery Metal</u>
Heavy Metal	
Cadmium (Cd) content	ND
Lead (Pb) content	250
Mercury (Hg) content	ND
Chromium VI (Cr ⁶⁺) content (mg/kg with 50cm ²)	Negative (< 0.02)

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg
ND = Not detected
< = Less than
mg/kg with 50cm² = milligram per kilogram with 50 square centimetre
Negative = A negative test result indicated positive observation
was not found at the time of Test.

Responsibility of Chemist : Irene Chiou / Kevin Liu

Date Sample Received : Nov 28, 2011

Test Period : Nov 29, 2011 To Dec 01, 2011

(II) RoHS Requirement:

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

The above limits were quoted from 2002/95/EC and amendment 2005/618/EC for homogeneous material.



Number : TWNC00234714

Test Conducted
(III) Test Method:

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

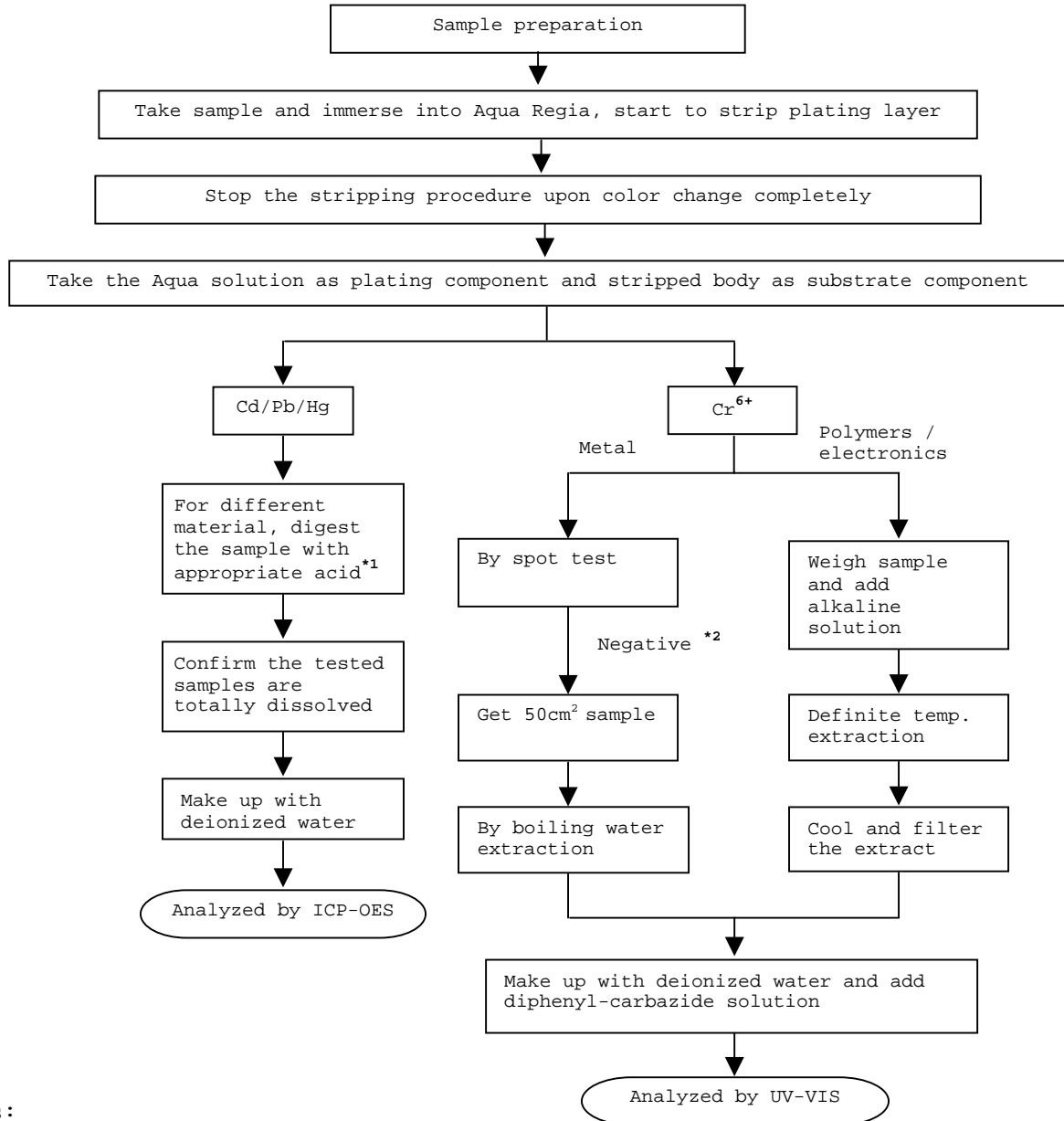
Remark: Reporting limit = Quantitation limit of analyte in sample

Test Conducted

(IV) Measurement Flowchart:

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

Reference Standard : IEC 62321 edition 1.0:2008



Remarks:

*1: List of Appropriate Acid:

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

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

End of Report

Test Conducted

Photo

