



**Table 1: List of Raw Materials covered by this report**

<b>Total Parts</b>	<b>Raw Material Part Number</b>	<b>Raw Material Description</b>	<b>Page(s)</b>
1	100 Series	01000054Z	3-6
2	100 Series	01000057Z	7-10
3	100 Series	01000058Z	11-14
4	100 Series	01000056Z	15-18

## Test Report

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

Number : TWNC00331283  
Date : Sep 17, 2013

### Sample Description:

One (1) group of submitted samples said to be :  
Part Description : CLIP  
Part Number : 01000054Z  
Date Sample Received : Sep 10, 2013  
Date Test Started : Sep 13, 2013

### Test Conducted :

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

### Tested components:

- (1) Dark grey metal substrate
- (2) Silvery plating layer

Authorized by:  
On Behalf of Intertek Testing Services  
Taiwan Limited



K. Y. Liang  
Director



## Test Report

Number: TWNC00331283

Test Conducted

### Test Result Summary:

Test Result Summary:

Test Item	Unit	Test Method	Result		RL
			(1)	(2)	
Heavy Metal					
Cadmium (Cd) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	ND	2
Lead (Pb) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	70	ND	2
Mercury (Hg) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	ND	2
Chromium VI (Cr <sup>6+</sup> ) content	mg/kg with 50 cm <sup>2</sup>	With reference to IEC 62321: 2008, by boiling water extraction and determined by UV-Vis Spectrophotometer.	Negative	Negative	0.02

Remarks: ppm = parts per million based on weight of tested sample = mg/kg  
 ND = Not detected  
 RL = Reporting Limit, Quantitation limit of analyte in sample  
 mg/kg with 50cm<sup>2</sup> = milligram per kilogram with 50 square centimeter  
 Negative = A negative test result indicated positive observation was not found at the time of test.

Responsibility of Chemist: Kevin Liu/ Irene Chiou

Date Sample Received : Aug 10, 2013  
 Test Period : Aug 13, 2013 to Aug 17, 2013

### 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)

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



## Test Report

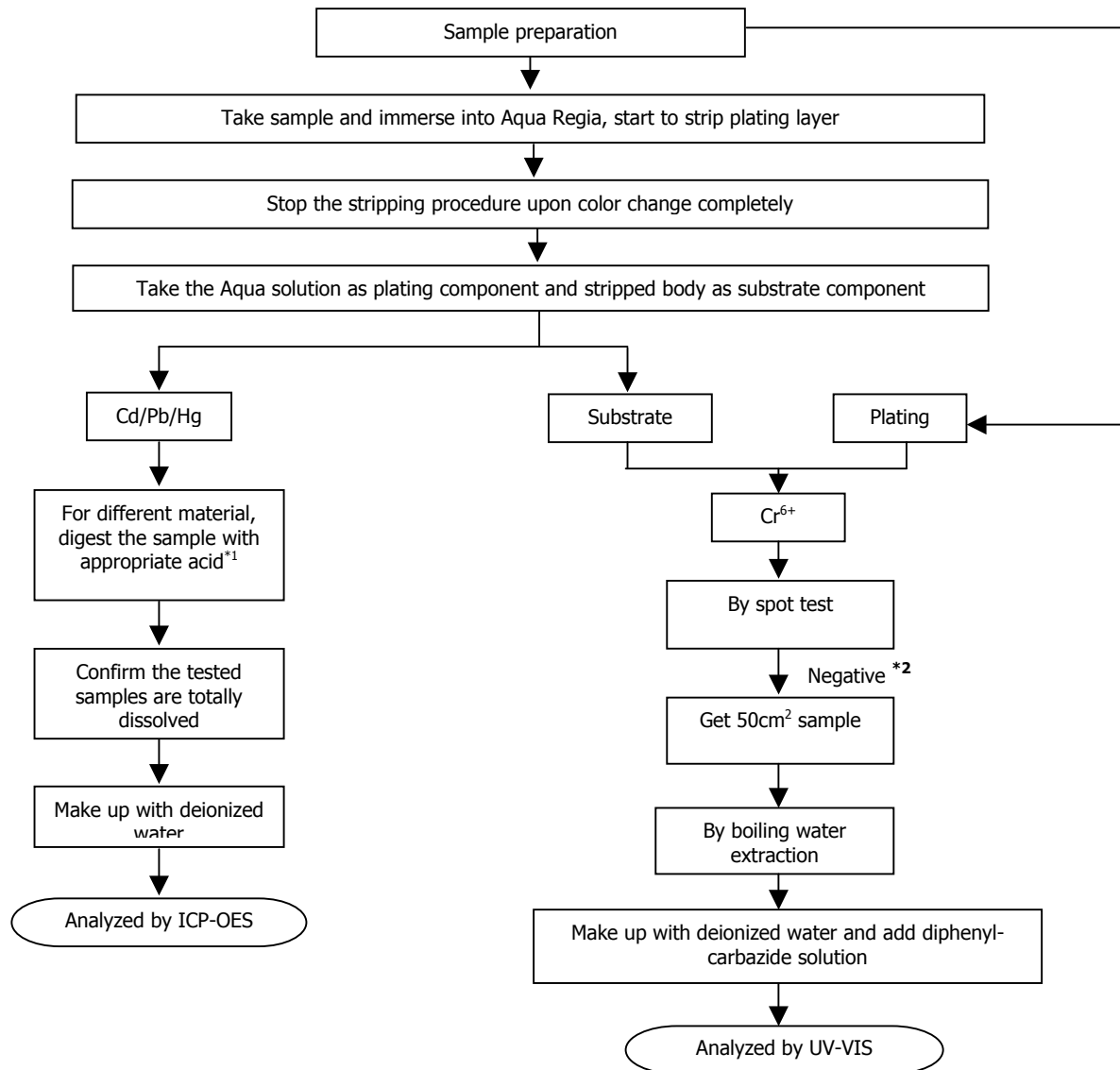
Number: TWNC00331283

Test Conducted

Measurement Flowchart:

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

Reference Method: IEC 62321 edition 1.0:2008



Remarks:

\*1: List of Appropriate Acid :

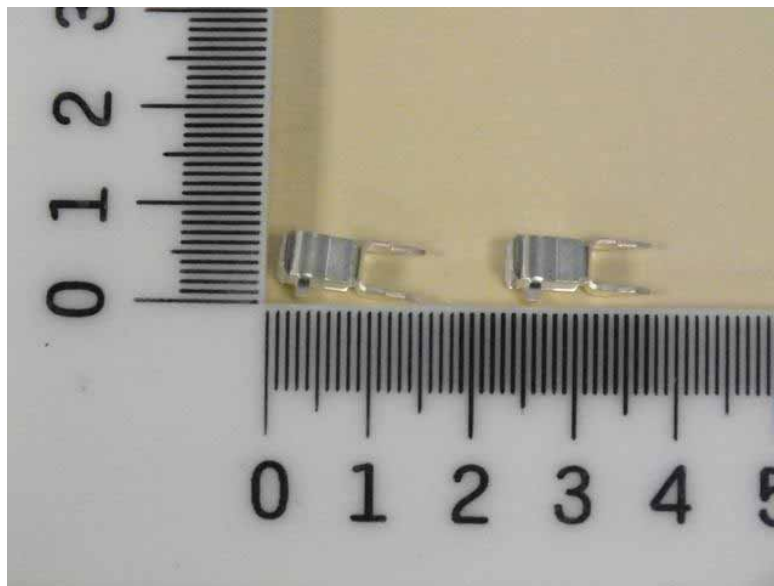
Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> , HCl, HF
Electronics	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

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



**Test Report**

Number: TWNC00331283



End of Report

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## Test Report

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

Number : TWNC00331286  
Date : Sep 17, 2013

### Sample Description:

One (1) group of submitted samples said to be :  
Part Description : CLIP  
Part Number : 01000057Z  
Date Sample Received : Sep 10, 2013  
Date Test Started : Sep 13, 2013

### Test Conducted :

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

### Tested components:

- (1) Coppery metal substrate
- (2) Silvery plating layer

### Authorized by:

On Behalf of Intertek Testing Services  
Taiwan Limited



K. Y. Liang  
Director



## Test Report

Number: TWNC00331286

Test Conducted

### Test Result Summary:

Test Item	Unit	Test Method	Result		RL
			(1)	(2)	
Heavy Metal					
Cadmium (Cd) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	3	ND	2
Lead (Pb) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	10	150	2
Mercury (Hg) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	ND	2
Chromium VI (Cr <sup>6+</sup> ) content	mg/kg with 50 cm <sup>2</sup>	With reference to IEC 62321: 2008, by boiling water extraction and determined by UV-Vis Spectrophotometer.	Negative	Negative	0.02

Remarks: ppm = parts per million based on weight of tested sample = mg/kg  
 ND = Not detected  
 RL = Reporting Limit, Quantitation limit of analyte in sample  
 mg/kg with 50cm<sup>2</sup> = milligram per kilogram with 50 square centimeter  
 Negative = A negative test result indicated positive observation was not found at the time of test.

Responsibility of Chemist: Kevin Liu/ Irene Chiou

Date Sample Received : Aug 10, 2013  
 Test Period : Aug 13, 2013 to Aug 17, 2013

### 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)

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





## Test Report

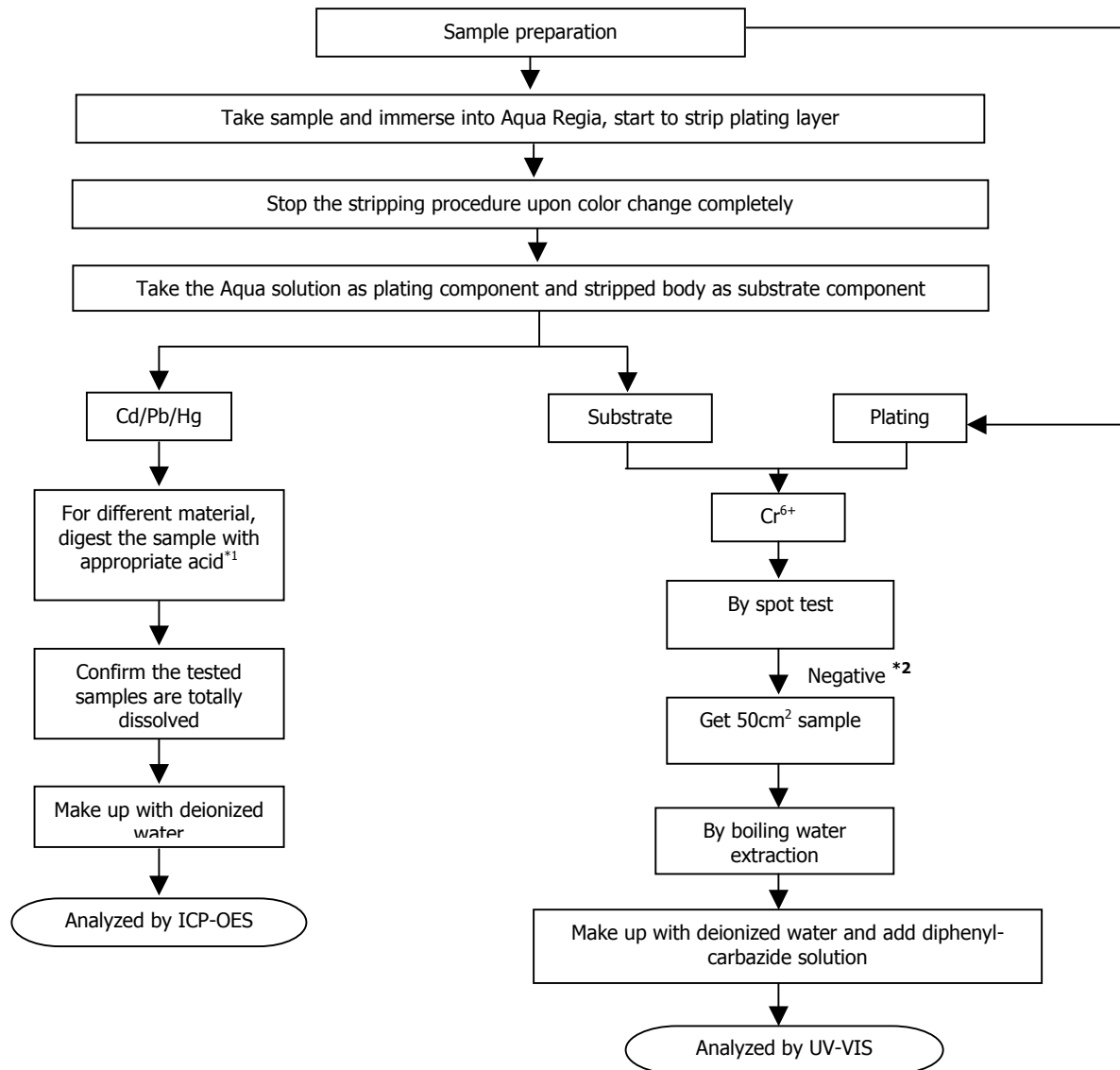
Number: TWNC00331286

Test Conducted

Measurement Flowchart:

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

Reference Method: IEC 62321 edition 1.0:2008



Remarks:

\*1: List of Appropriate Acid :

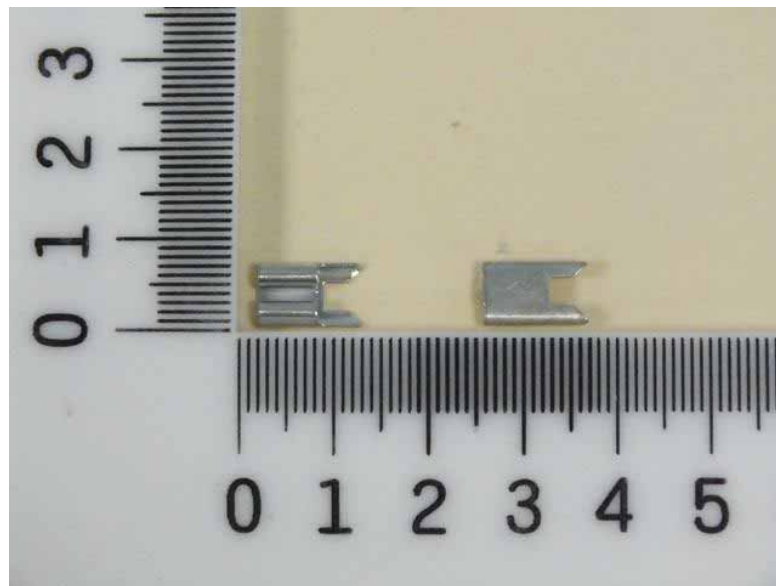
Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> , HCl, HF
Electronics	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

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



**Test Report**

Number: TWNC00331286



End of Report

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## Test Report

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

Number : TWNC00331285  
Date : Sep 17, 2013

### Sample Description:

One (1) group of submitted samples said to be :  
Part Description : CLIP  
Part Number : 01000058Z  
Date Sample Received : Sep 10, 2013  
Date Test Started : Sep 13, 2013

### Test Conducted :

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

### Tested components:

- (1) Coppery metal substrate
- (2) Silvery plating layer

### Authorized by:

On Behalf of Intertek Testing Services  
Taiwan Limited



K. Y. Liang  
Director



## Test Report

Number: TWNC00331285

Test Conducted

### Test Result Summary:

Test Item	Unit	Test Method	Result		RL
			(1)	(2)	
Heavy Metal					
Cadmium (Cd) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	ND	2
Lead (Pb) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	37	310	2
Mercury (Hg) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	ND	2
Chromium VI (Cr <sup>6+</sup> ) content	mg/kg with 50 cm <sup>2</sup>	With reference to IEC 62321: 2008, by boiling water extraction and determined by UV-Vis Spectrophotometer.	Negative	Negative	0.02

Remarks: ppm = parts per million based on weight of tested sample = mg/kg  
 ND = Not detected  
 RL = Reporting Limit, Quantitation limit of analyte in sample  
 mg/kg with 50cm<sup>2</sup> = milligram per kilogram with 50 square centimeter  
 Negative = A negative test result indicated positive observation was not found at the time of test.

Responsibility of Chemist: Kevin Liu/ Irene Chiou

Date Sample Received : Aug 10, 2013  
 Test Period : Aug 13, 2013 to Aug 17, 2013

### 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)

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



## Test Report

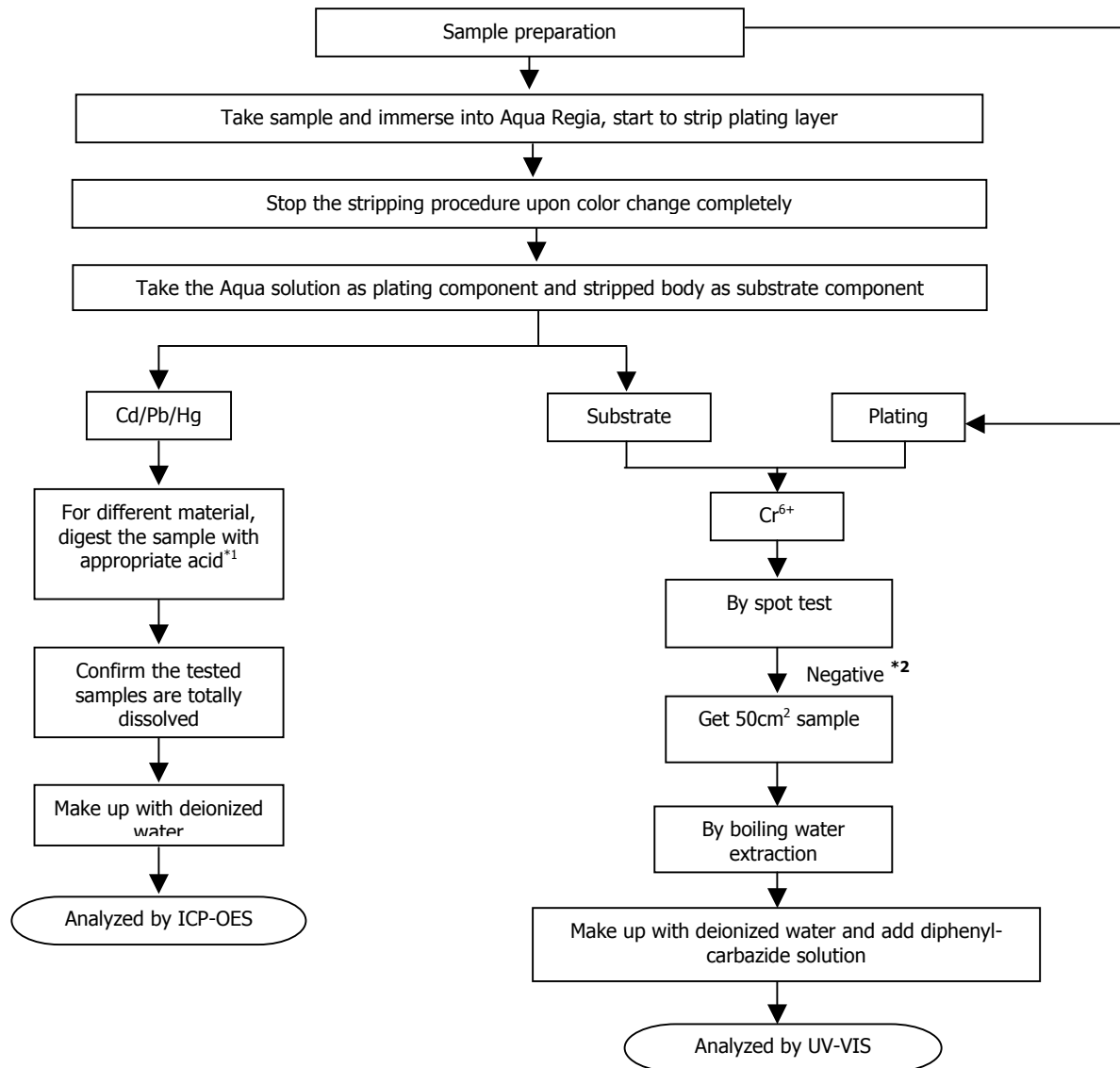
Number: TWNC00331285

Test Conducted

Measurement Flowchart:

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

Reference Method: IEC 62321 edition 1.0:2008



Remarks:

\*1: List of Appropriate Acid :

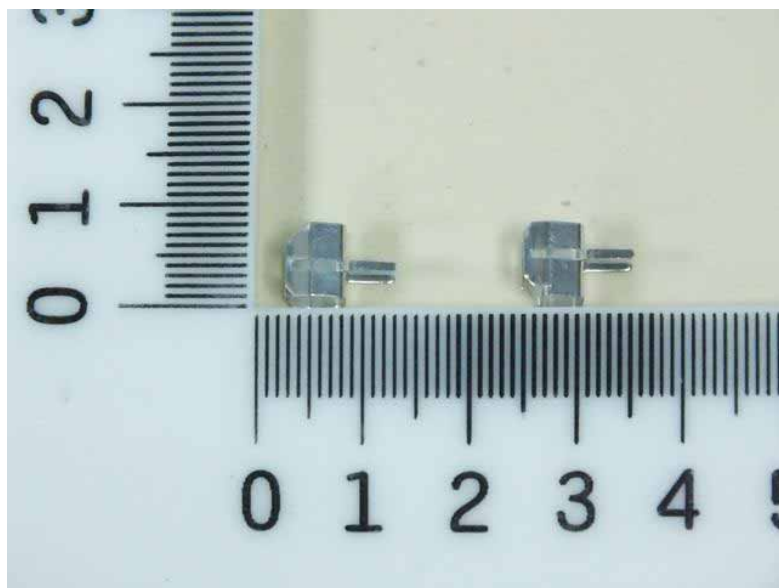
Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> , HCl, HF
Electronics	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

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



## Test Report

Number: TWNC00331285



End of Report

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## Test Report

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

Number : TWNC00331284  
Date : Sep 17, 2013

### Sample Description:

One (1) group of submitted samples said to be :  
Part Description : CLIP  
Part Number : 01000056Z  
Date Sample Received : Sep 10, 2013  
Date Test Started : Sep 13, 2013

### Test Conducted :

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

### Tested components:

- (1) Coppery metal substrate
- (2) Silvery plating layer

### Authorized by:

On Behalf of Intertek Testing Services  
Taiwan Limited



K. Y. Liang  
Director



## Test Report

Number: TWNC00331284

Test Conducted

### Test Result Summary:

Test Item	Unit	Test Method	Result		RL
			(1)	(2)	
Heavy Metal					
Cadmium (Cd) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	ND	2
Lead (Pb) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	47	501	2
Mercury (Hg) content	ppm	With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.	ND	ND	2
Chromium VI (Cr <sup>6+</sup> ) content	mg/kg with 50 cm <sup>2</sup>	With reference to IEC 62321: 2008, by boiling water extraction and determined by UV-Vis Spectrophotometer.	Negative	Negative	0.02

Remarks: ppm = parts per million based on weight of tested sample = mg/kg  
 ND = Not detected  
 RL = Reporting Limit, Quantitation limit of analyte in sample  
 mg/kg with 50cm<sup>2</sup> = milligram per kilogram with 50 square centimeter  
 Negative = A negative test result indicated positive observation was not found at the time of test.

Responsibility of Chemist: Kevin Liu/ Irene Chiou

Date Sample Received : Aug 10, 2013  
 Test Period : Aug 13, 2013 to Aug 17, 2013

### 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)

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





**Test Report**

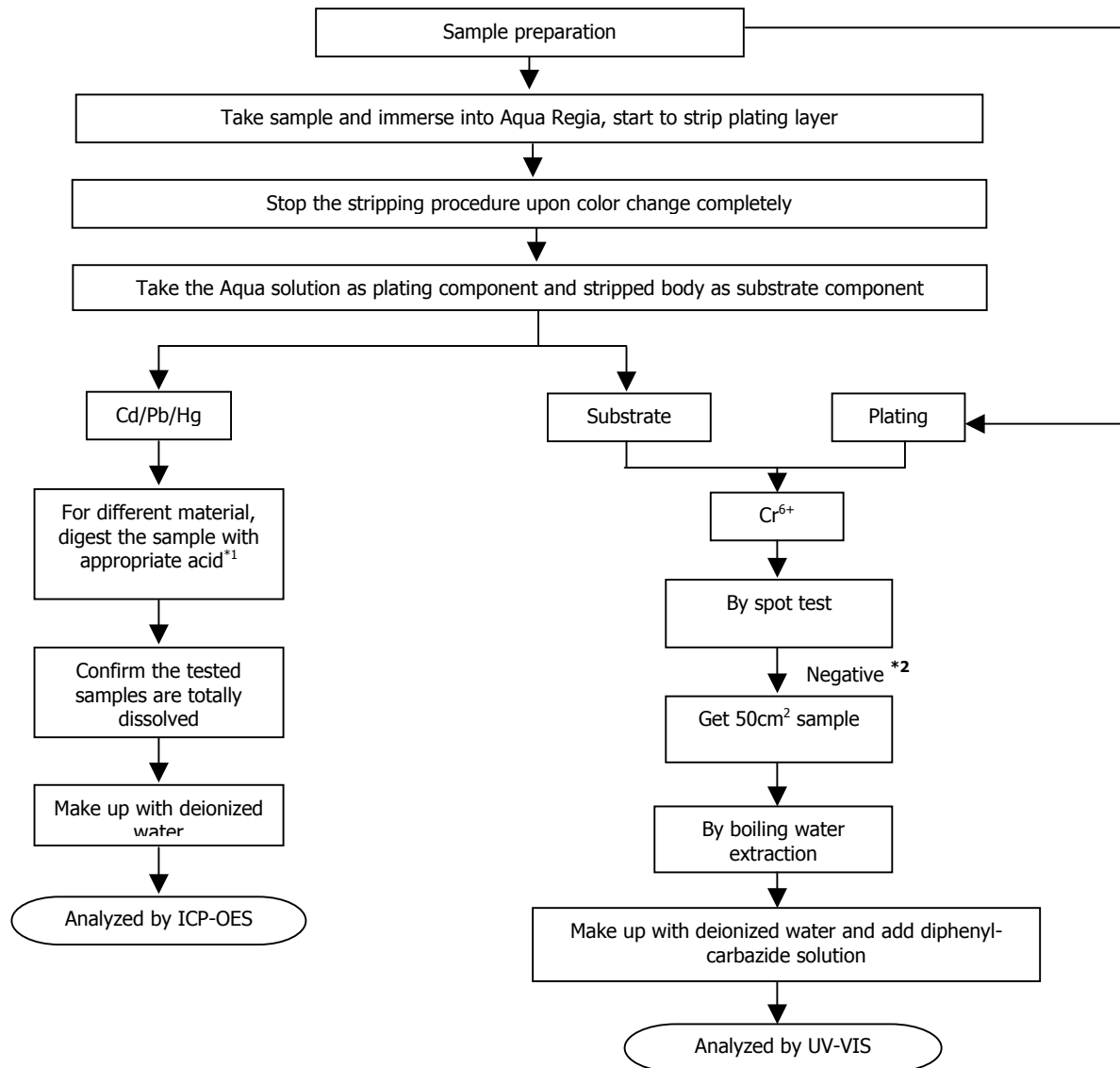
Number: TWNC00331284

Test Conducted

Measurement Flowchart:

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

Reference Method: IEC 62321 edition 1.0:2008



Remarks:

\*1: List of Appropriate Acid :

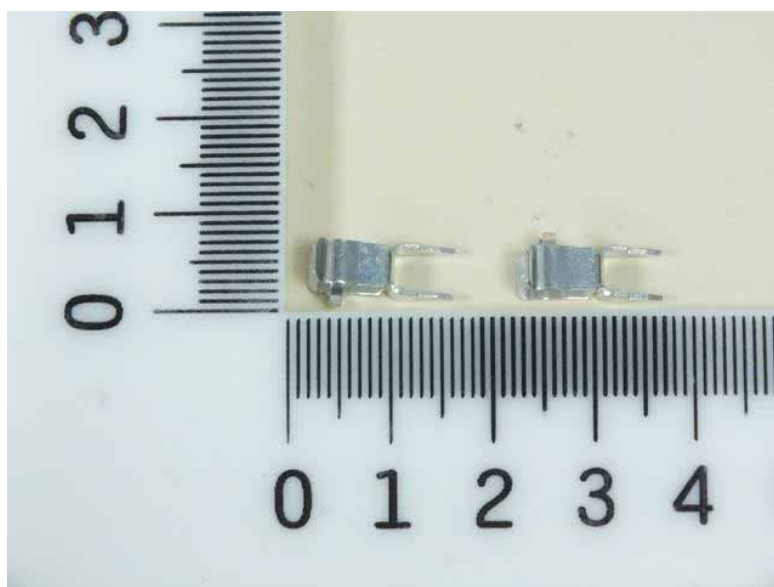
Material	Acid Added for Digestion
Polymers	HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> , HCl, HF
Electronics	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

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



## Test Report

Number: TWNC00331284



End of Report

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