



**CENTRE OF TESTING SERVICE
INTERNATIONAL**

OPERATE ACCORDING TO ISO/IEC 17025

TEST REPORT

RoHS 2011/65/EU

Test Report Number : CNB3160908-03416-C



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1 General Information

1.1 Application Details

Name : YUEQING LANGIR ELECTRIC CO., LTD.
Address : 4F.NO.188, LIUQING NORTH ROAD, LIUSHI TOWN, YUEQING CITY, WENZHOU, CHINA
Contact : Miss Ni
Telephone : +86-577-62737670
Fax : +86-577-62737671
Mobile telephone : 13695747282
Email : sales@sunshinele.com

1.2 Manufacturer & Buyer

Manufacturer name : YUEQING LANGIR ELECTRIC CO., LTD.
Address : 4F.NO.188, LIUQING NORTH ROAD, LIUSHI TOWN, YUEQING CITY, WENZHOU, CHINA
Contact : Miss Ni
Telephone : +86-577-62737670
Fax : +86-577-62737671
Mobile telephone : 13695747282
Email : sales@sunshinele.com
Buyer name : /

1.3 Description of the Test Item

Sample name : CAPACITIVE SWITCH
Model No. : CP19, CP16, CP22, CP25
Brand name : LANGIR
Condition of sample(s) : EFFECTIVE

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2 Test results

2.1 General Information

2.1.1 Sample Receiving Date

Sep. 8, 2016

2.1.2 Testing Period

Sep. 8, 2016 to Mar. 8, 2017

2.1.3 Test Requested

In accordance with the RoHS Directive 2011/65/EU Annex II.

2.1.4 Test Method

1. X-Ray Fluorescence Spectrometry method in reference to IEC 62321-3-1:2013.
2. Chemical test method

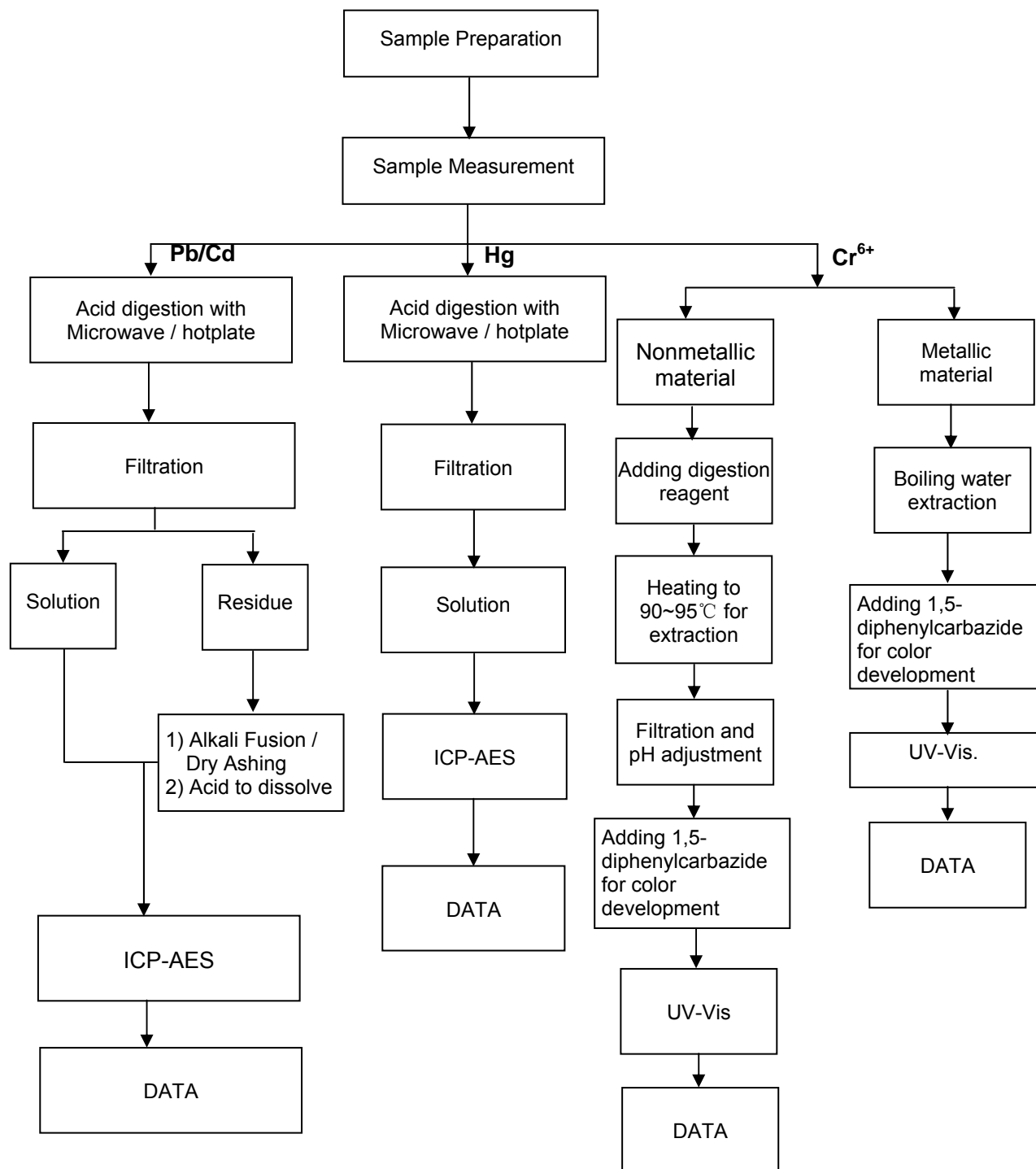
Test Item(s)	Sample preparation	Test Method	Test Instrument
Lead (Pb)	With reference to IEC 62321-2:2013	With reference to IEC 62321-5:2013	ICP-AES
Cadmium (Cd)		With reference to IEC 62321-5:2013	ICP-AES
Mercury (Hg)		With reference to IEC 62321-4:2013	ICP-AES
Chromium VI (Cr VI)		With reference to IEC 62321:2008 IEC 62321-7-1:2015	UV-Vis
PBBs		With reference to IEC 62321-6:2015	GC-MS
PBDEs			

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2.1.5 Chemical Test Method Flow Chart



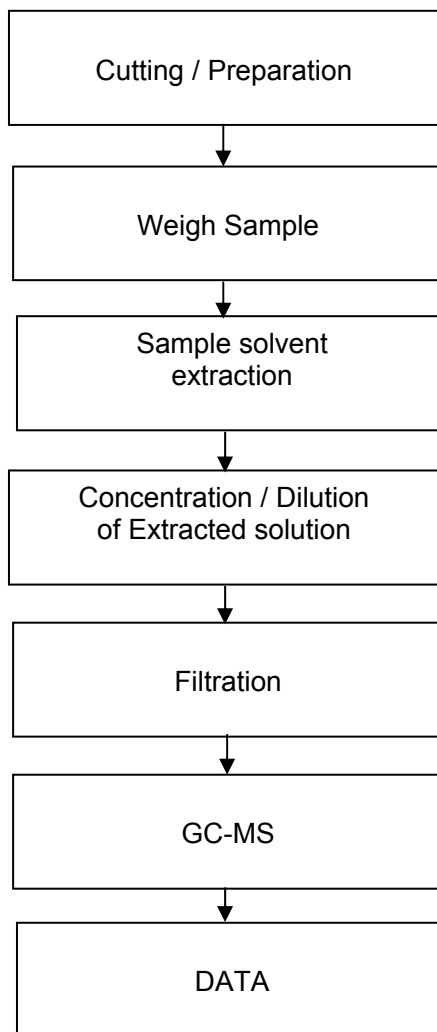
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PBBs / PBDEs



2.1.6 Conclusion

Based on the performed tests on submitted samples, the results of Lead, Cadmium, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

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2.2 Test Results

2.2.1 Test results of all parts by EDXRF and chemical confirmation

No.	Sample Description		Results					Chemical Confirmation Result (Unit=mg/kg)
			Pb	Cd	Hg	Cr	Br	
1	White cable jacket		P	P	P	P	P	/
2	Black cable jacket		P	P	P	P	P	/
3	Red cable jacket		P	P	P	P	P	/
4	Slivery wire		P	P	P	P	/	/
5	Black soft plastic gasket		P	P	P	P	P	/
6	Shiny slivery metal nut		P	P	P	X	/	CrVI: N.D.
7	Black encapsulation material		P	P	P	P	P	/
8	Transparent soft plastic		P	P	P	P	P	/
9	Semi-transparent plastic		P	P	P	P	P	/
10	PCB	Base material	P	P	P	P	P	/
11		Copper foil	P	P	P	P	/	/
12	Chip audion		X	P	P	P	P	Pb:156
13	Chip resistor		X	P	P	P	P	Pb:278
14	Chip capacitor		P	P	P	P	P	/
15	IC	Black body	P	P	P	P	P	/
16		Pin	P	P	P	P	/	/
17	Chip LED		P	P	P	P	P	/
18	Soldering tin and solder		P	P	P	P	/	/

Note : P = Below Limit (Pass)
 F = Over Limit (Fail)
 X = Inconclusive
 N.D. = not detected (less than MDL)
 1mg/kg=1ppm=0.0001%

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Remarks:

(1) Results are obtained by EDXRF for primary screening, and further chemical testing is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

Element	Polymer Materials	Metallic Materials	Electronic Materials
Pb	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$
Cd	$P \leq 50 < X < 130 \leq F$	$P \leq 50 < X < 130 \leq F$	$X < 130 \leq F$
Hg	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$
Cr	$P \leq 700 < X$	$P \leq 700 < X$	$P \leq 500 < X$
Br	$P \leq 250 < X$	/	$P \leq 250 < X$

(2) Chemical Confirmation Result acceptable Limit and Method Detect Limit:

Test items	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (CrVI) by alkaline extraction	Chromium VI (CrVI) by boiling water extraction#	PBBs	PBDEs
Unit	mg/kg	mg/kg	mg/kg	mg/kg	$\mu\text{g}/\text{cm}^2$	mg/kg	mg/kg
Method Detection Limit	2	2	2	2	0.10	5	5
Acceptable Limit	1000	100	1000	1000	---	1000	1000

- Note : 1. #=a. The sample is positive for CrVI if the CrVI concentration is greater than $0.13 \mu\text{g}/\text{cm}^2$. The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is N.D. (concentration less than $0.10 \mu\text{g}/\text{cm}^2$). The coating is considered a non-CrVI based coating.
 c. The result between $0.10 \mu\text{g}/\text{cm}^2$ and $0.13 \mu\text{g}/\text{cm}^2$ is considered to be inconclusive unavoidable coating variations may influence the determination.
 2. Cr(VI) results represent status of the sample at the time of testing.

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2.2.2 Test results by chemical analysis

Test items	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (CrVI) by alkaline extraction	Chromium VI (CrVI) by boiling water extraction [#]	PBBs	PBDEs
Unit	mg/kg	mg/kg	mg/kg	mg/kg	μg/cm ²	mg/kg	mg/kg
Acceptable Limit	1000	100	1000	1000	---	1000	1000
19 Shiny slivery metal cover	N.D.	N.D.	N.D.	N.A.	N.D.	N.A.	N.A.

- Note :
- Specimens, which requested to determine Cadmium, Mercury and Lead content, have been dissolved completely.
 - N.D. = not detected (less than MDL)
 - N.A. = not applicable
 - 1 mg/kg=1 ppm=0.0001%
 - #=a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 μg/cm². The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is N.D. (concentration less than 0.10 μg/cm²). The coating is considered a non-CrVI based coating.
 c. The result between 0.10 μg/cm² and 0.13 μg/cm² is considered to be inconclusive unavoidable coating variations may influence the determination.
 - Cr(VI) results represent status of the sample at the time of testing.
 - The test results only apply to the materials requested by applicant.

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8. The method detect limit for each hazardous substances, and determined individual PBBs and individual PBDEs are:

Method Detect Limit		
Heavy Metals	Lead (Pb)	2 mg/kg
	Cadmium (Cd)	2 mg/kg
	Mercury (Hg)	2 mg/kg
	Chromium VI (CrVI) by alkaline extraction	2 mg/kg
	Chromium VI (CrVI) by boiling water extraction	0.10µg/cm ²
PBBs	Monobromobiphenyl	5 mg/kg
	Dibromobiphenyl	5 mg/kg
	Tibromobiphenyl	5 mg/kg
	Tetrabromobiphenyl	5 mg/kg
	Pentabromobiphenyl	5 mg/kg
	Hexabromobiphenyl	5 mg/kg
	Heptabromobiphenyl	5 mg/kg
	Octabromobiphenyl	5 mg/kg
	Nonabromodiphenyl	5 mg/kg
	Decabromodiphenyl	5 mg/kg
PBDEs	Monobromodiphenyl ether	5 mg/kg
	Dibromodiphenyl ether	5 mg/kg
	Tibromodiphenyl ether	5 mg/kg
	Tetrabromodiphenyl ether	5 mg/kg
	Pentabromodiphenyl ether	5 mg/kg
	Hexabromodiphenyl ether	5 mg/kg
	Heptabromodiphenyl ether	5 mg/kg
	Octabromodiphenyl ether	5 mg/kg
	Nonabromodiphenyl ether	5 mg/kg
	Decabromodiphenyl ether	5 mg/kg

Written by: *Jessie*

Inspected by: *Suzei*

Approved by: *Jan*



End of Report

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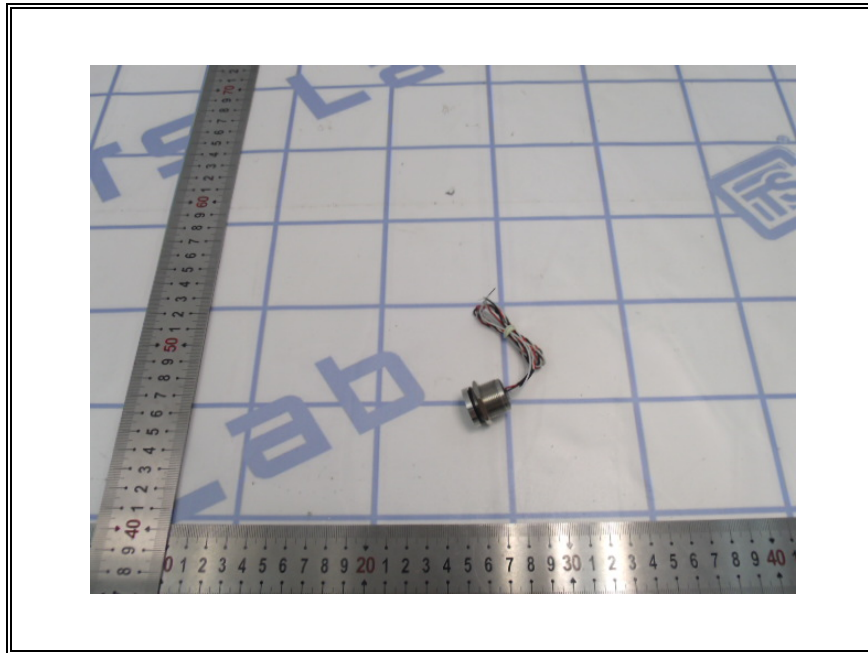
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3 Sample Reference Photo



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