



# TEST REPORT

Report No.: ZKS170700182

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Applicant : Shenzhen Sun Rising Membrane Switch Co., Limited.  
Address : Second floor, Building D, Zhangkeng Industrial Zone, Minzhi, Longhua  
New District, Shenzhen City, China.  
Manufacturer : Shenzhen Sun Rising Membrane Switch Co., Limited.  
Address : Second floor, Building D, Zhangkeng Industrial Zone, Minzhi, Longhua  
New District, Shenzhen City, China.  
Products : Membrane Switch  
Brand Name : ----  
Model No. : CRT-3  
Receiving Date : 2017-07-25  
Testing Period : From 2017-07-25 to 2017-07-29  
Test Requested and Conclusion : As specified by client, to test below items with reference to  
RoHs(Restriction of Hazardous Substances) directive 2011/65/EU on  
submitted samples  
- Heavy metal (Pb, Cd, Hg and CrVI) Content **PASS**  
- Polybrominated Biphenyls (PBBs) and  
Polybrominated Diphenyl Ethers (PBDEs) Content **PASS**  
Test Result : Refer to the following page(s)  
Remark : -The result related only to the items tested;  
- the test items were specified by client;

**Authorized By:**

For Shenzhen ZRLK Testing Technology Co., Ltd.

*Ailis Ma*

**Ailis Ma**  
**Technical Supervisor**



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## 1. Tested Subject Description:

No.	Sample Description
1	Polyester
2	Spacer
3	Metal dome
4	Below circuitry
5	LED
6	Double sided adhesive
7	Black and white oil
8	Tail's housing

## 2. XRF Screening Test Result:

Tested Items	Results							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lead (Pb)	BL	BL	BL	BL	BL	BL	BL	BL
Cadmium(Cd)	BL	BL	BL	BL	BL	BL	BL	BL
Mercury(Hg)	BL	BL	BL	BL	BL	BL	BL	BL
Chromium(Cr)	BL	BL	BL	BL	BL	BL	BL	BL
Bromine(Br)	BL	BL	---	BL	BL	BL	BL	BL

BL = below limit by XRF analysis

OL = over limit by XRF analysis

D = Detected (questionable, need further chemical analysis)

\* = The screened result was found by XRF and further chemical test was suggested.

Remark:

(1) It is the result on total Br while test PBBs and PBDEs by EDXRF. It is the result on total Cr while test Hexavalent Chromium by EDXRF.

(2) Results are obtained by EDXRF for primary screening, and chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (Cr(VI)) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321 Ed 1.0

(Unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	BL $\leq 70-3\sigma < D < 130+3\sigma \leq OL$	BL $\leq 70-3\sigma < D < 130+3\sigma \leq OL$	BL $\leq 50-3\sigma < D < 150+3\sigma \leq OL$
Pb	BL $\leq 700-3\sigma < D < 1300+3\sigma \leq OL$	BL $\leq 700-3\sigma < D < 1300+3\sigma \leq OL$	BL $\leq 500-3\sigma < D < 1500+3\sigma \leq OL$
Hg	BL $\leq 700-3\sigma < D < 1300+3\sigma \leq OL$	BL $\leq 700-3\sigma < D < 1300+3\sigma \leq OL$	BL $\leq 500-3\sigma < D < 1500+3\sigma \leq OL$
Cr	BL $\leq 700-3\sigma < D$	BL $\leq 700-3\sigma < D$	BL $\leq 500-3\sigma < D$
Br	BL $\leq 300-3\sigma < D$	----	BL $\leq 250-3\sigma < D$

## 3. The test results of chemical method:

Note: mg/kg = milligram per kilogram

ND = Not detected

\* = **Failed item**

\*\* = As claimed by the declaration submitted from the applicant, the lead content of component 29 is coming from copper alloy only; According to EU RoHS directive (2011/65/EU) annex III, lead as an alloying element in copper alloy

can be containing up to 4%(40,000ppm) lead by weight.

\*\*\* = As claimed by the declaration submitted from the applicant, the Lead content of component 39 is coming from the constituent of glass used in electronic components only. According to EU RoHS directive (2011/65/EU) annex III, lead in glass of this component can be exempted.

#### 4 Chemical test method:

Testing item	Testing method	Reporting limit
Cadmium (Cd) content	IEC 62321:2008 Edition 1.0 Part 8,9 and 10, by acid digestion and determined by AAS and ICP - OES	5 mg/kg
Lead (Pb) content	IEC 62321:2008 Edition 1.0 Part 8,9 and 10, by acid digestion and determined by AAS and ICP - OES	5 mg/kg
Mercury (Hg) content	IEC 62321:2008 Edition 1.0 Part 7, by acid digestion and determined by ICP - OES	5 mg/kg
Chromium (VI) (Cr <sup>6+</sup> ) content (for non-metal)	IEC 62321:2008 Edition 1.0 Annex C, by alkaline digestion and determined by uv-vis spectrophotometer	1 mg/kg
Chromium (VI) (Cr <sup>6+</sup> ) content (for metal)	IEC 62321:2008 Edition 1.0 Annex B, by spot test and boiling water extraction procedure	0.02 mg/kg (50cm <sup>2</sup> )
polybrominated biphenyls (PBBs)& polybrominated diphenyl ethers (PBDEs)	IEC 62321:2008 Edition 1.0 Annex A, by solvent extraction and determined by GC/MS	5 mg/kg

#### 5 RoHS requirement:

Restricted substances	Limits
Cadmium (Cd)	0.01% (100 ppm)
Lead (Pb)	0.1% (1000 ppm)
Mercury (Hg)	0.1% (1000 ppm)
Chromium (VI) (Cr <sup>6+</sup> )	0.1% (1000 ppm)
Polybrominated biphenyls (PBBs)	0.1% (1000 ppm)
Polybrominated diphenyl ethers (PBDEs)	0.1% (1000 ppm)

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

## 6. Tested samples photos:



\*\*\*\*\*End of Test Report\*\*\*\*\*