

# Shenzhen 863 New Material and Technology Co., Ltd

## Test Report

Report No: SAC2019-06228-53E

Date: Nov. 14, 2019

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**Customer** : SHENZHEN REFOND OPTOELECTRONICS CO., LTD  
**Address** : 6th Floor, Building #1, 10th Industrial Zone, Tian Liao Community, Gong Ming Area,  
Guang Ming New District, Shenzhen, China

### Sample Information

**Sample Name** : PL LED 2835  
**Sample Description** : White lamp beads  
**Model/P.O. No.** : /  
**Item/Lot No.** : /  
**Material** : /  
**Buyer** : /  
**Supplier** : Refond  
**Manufacturer** : /  
**Received Date** : Nov. 5, 2019  
**Test Period** : Nov. 5, 2019~Nov. 14, 2019  
**Test Requested** : As specified by customer, to determine Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr<sup>6+</sup>), PBBs, PBDEs, DBP, BBP, DEHP, DIBP, Fluorine (F), Chlorine (Cl), Bromine (Br) and Iodine (I) content.

**Test Method:** Please refer to the following page(s).

**Note:** /

**Test Result(s):** Please refer to the following page(s).

### Test Conclusion:

1. To test according to the requirements of the customer, the test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr<sup>6+</sup>), PBBs, PBDEs, DBP, BBP, DEHP, DIBP results of the sample shown on this report do not exceed the required limit of EU RoHS 2011/65/EU and 2015/863/EU.
2. The Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I) results of the sample shown on this report do not exceed the required limit of IEC 61249-2-21.

Edited by: Hedy

Audited by: Yanping Xiao

Approved by: Xin



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**Test Method:**

Test Item(s)	Test Method	Equipment
Lead (Pb), Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
Mercury (Hg)	IEC 62321-4:2013	ICP-OES
Hexavalent Chromium (Cr <sup>6+</sup> )	IEC 62321-7-2:2017	UV-Vis
PBBs, PBDEs	IEC 62321-6:2015	GC-MS
DBP, BBP, DEHP, DIBP	IEC 62321-8:2017	GC-MS
Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)	EN 14582:2016	IC

**Test Result(s):**
**1. Test Result(s) (Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr<sup>6+</sup>), PBBs, PBDEs, DBP, BBP, DEHP, DIBP):**

Test Item(s)	MDL (mg/kg)	Result(s) (mg/kg)	Limit <sup>*</sup> (mg/kg)
Lead (Pb)	2	N.D.	1000
Cadmium (Cd)	2	N.D.	100
Mercury (Hg)	2	N.D.	1000
Hexavalent Chromium (Cr <sup>6+</sup> )	2	N.D.	1000
Monobromobiphenyl	5	N.D.	—
Dibromobiphenyl	5	N.D.	—
Tribromobiphenyl	5	N.D.	—
Tetrabromobiphenyl	5	N.D.	—
Pentabromobiphenyl	5	N.D.	—
Hexabromobiphenyl	5	N.D.	—
Heptabromobiphenyl	5	N.D.	—
Octabromobiphenyl	5	N.D.	—
Nonabromobiphenyl	5	N.D.	—
Decabromodiphenyl	5	N.D.	—
Polybromobiphenyl(PBBs)	—	N.D.	1000
Monobromobiphenyl ether	5	N.D.	—
Bibromobiphenyl ether	5	N.D.	—
Tribromobiphenyl ether	5	N.D.	—

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Test Item(s)	MDL (mg/kg)	Result(s) (mg/kg)	Limit <sup>*1</sup> (mg/kg)
Tetrabromobiphenyl ether	5	N.D.	—
Pentabromobiphenyl ether	5	N.D.	—
Hexabromobiphenyl ether	5	N.D.	—
Heptabromobiphenyl ether	5	N.D.	—
Octabromobiphenyl ether	5	N.D.	—
Nonabromobiphenyl ether	5	N.D.	—
Decabromodiphenyl ether	5	N.D.	—
Polybromodiphenyl ether (PBDEs)	—	N.D.	1000
Dibutyl phthalate (DBP)	10	N.D.	1000
Butyl benzyl phthalate (BBP)	10	N.D.	1000
Bis(2-ethylhexyl) phthalate(DEHP)	10	N.D.	1000
Diisobutyl phthalate (DIBP)	10	N.D.	1000

**2. Test Result(s) (Fluorine (F), Chlorine (Cl), Bromine (Br) and Iodine (I)):**

Test Item(s)	MDL (mg/kg)	Result(s) (mg/kg)	Limit <sup>*2</sup> (mg/kg)
Fluorine (F)	50	N.D.	—
Chlorine (Cl)	50	N.D.	900
Bromine (Br)	50	N.D.	900
Iodine (I)	50	N.D.	—

**Remark:** mg/kg=ppm=parts per million

N.D.=Not Detected (&lt;MDL); MDL=method detection limit

<sup>\*1</sup>: The Limit is(are) from EU RoHS 2011/65/EU and 2015/863/EU.

<sup>\*2</sup>: The Limit is(are) from IEC 61249-2-21.

<sup>#</sup>: According to customer's requirements, the testing is based on mixed samples while not on individual material, and the result is only for reference during inhouse quality control.

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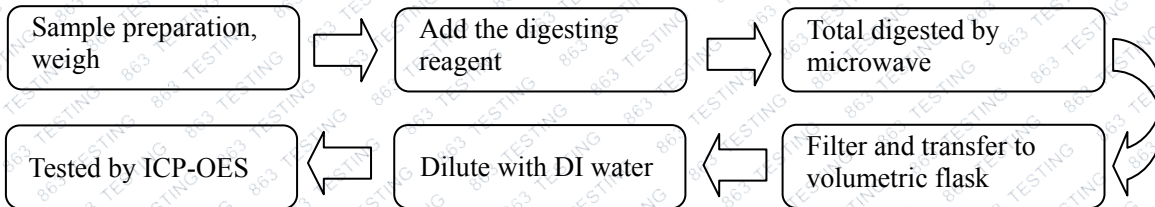
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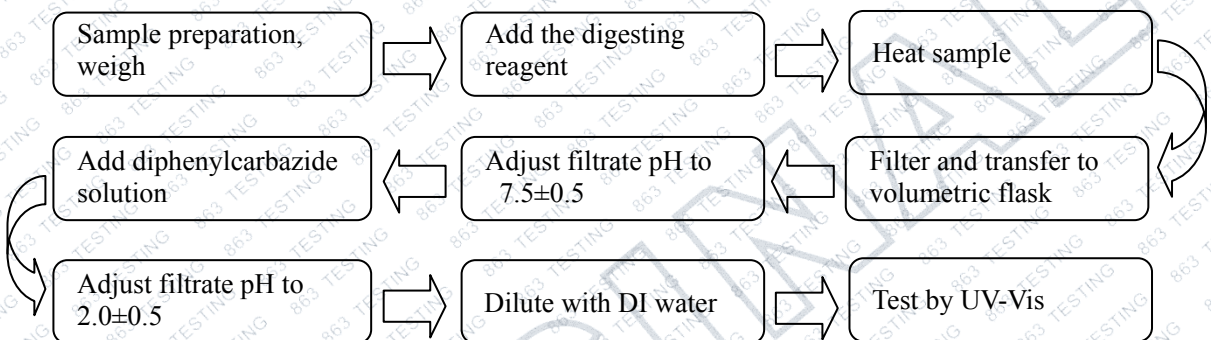
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**Test Process:**

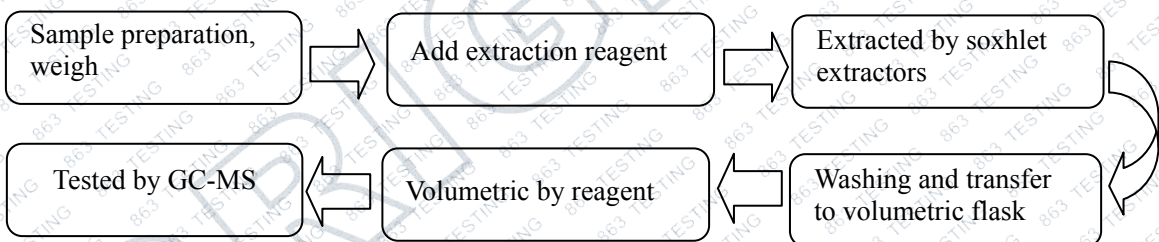
**1. Test Lead (Pb), Cadmium (Cd), Mercury (Hg) concentration:**



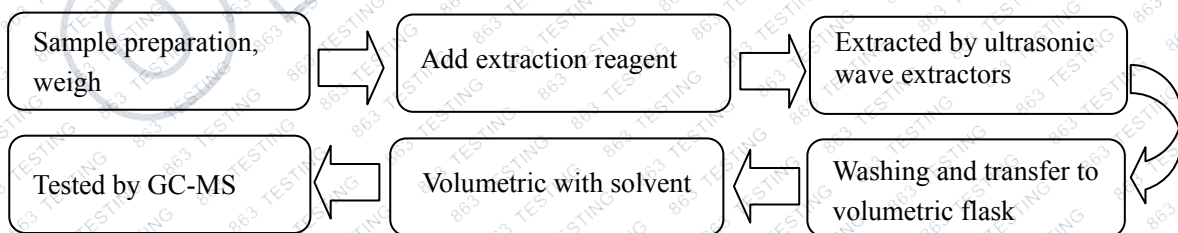
**2. Test Hexavalent Chromium (Cr<sup>6+</sup>) concentration:**



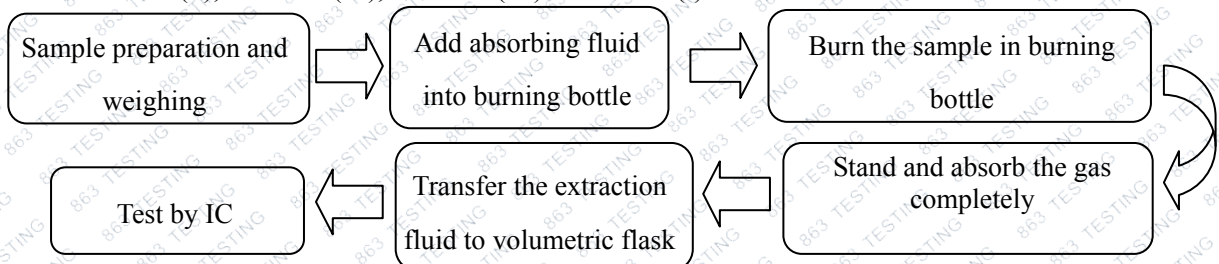
**3. Test PBBs, PBDEs concentration:**



**4. Test DBP, BBP, DEHP, DIBP concentration:**



**5. Test Fluorine (F), Chlorine (Cl), Bromine (Br) and Iodine (I) concentration:**



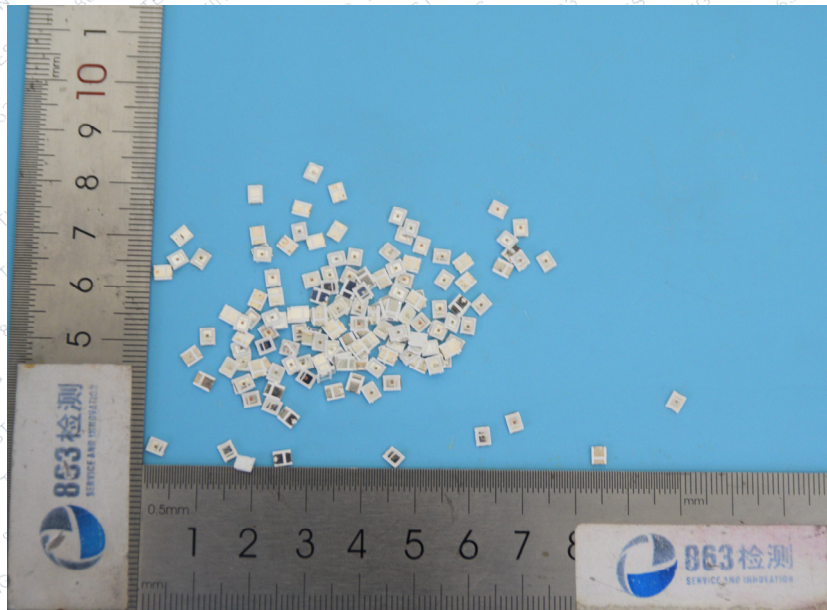
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**Photo of the sample**



**\*\*\* End of report \*\*\***

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