

Shenzhen 863 New Material and Technology Co., Ltd

Test Report

Report No: SAC2019-06228-21E

Date: Nov. 14, 2019

Page 1 of 5

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 : LED Filament
Sample Description : Yellow light bar and silver metal
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 (Cr⁶⁺), 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 (Cr⁶⁺), 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: Ginead



Test Report

Report No: SAC2019-06228-21E

Date: Nov. 14, 2019

Page 2 of 5

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 ⁶⁺)	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 (Cr⁶⁺), PBBs, PBDEs, DBP, BBP, DEHP, DIBP):

Test Item(s)	MDL (mg/kg)	Result(s) (mg/kg)	Limit [*] (mg/kg)
Lead (Pb)	2	N.D.	1000
Cadmium (Cd)	2	N.D.	100
Mercury (Hg)	2	N.D.	1000
Hexavalent Chromium (Cr ⁶⁺)	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.	—

Test Report

Report No: SAC2019-06228-21E

Date: Nov. 14, 2019

Page 3 of 5

Test Item(s)	MDL (mg/kg)	Result(s) (mg/kg)	Limit ^{*1} (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 ^{*2} (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 (<MDL); MDL=method detection limit

^{*1}: The Limit is(are) from EU RoHS 2011/65/EU and 2015/863/EU.

^{*2}: The Limit is(are) from IEC 61249-2-21.

[#]: 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.

Test Report

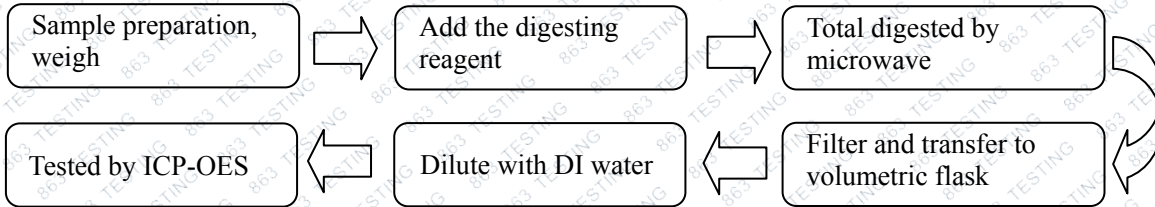
Report No: SAC2019-06228-21E

Date: Nov. 14, 2019

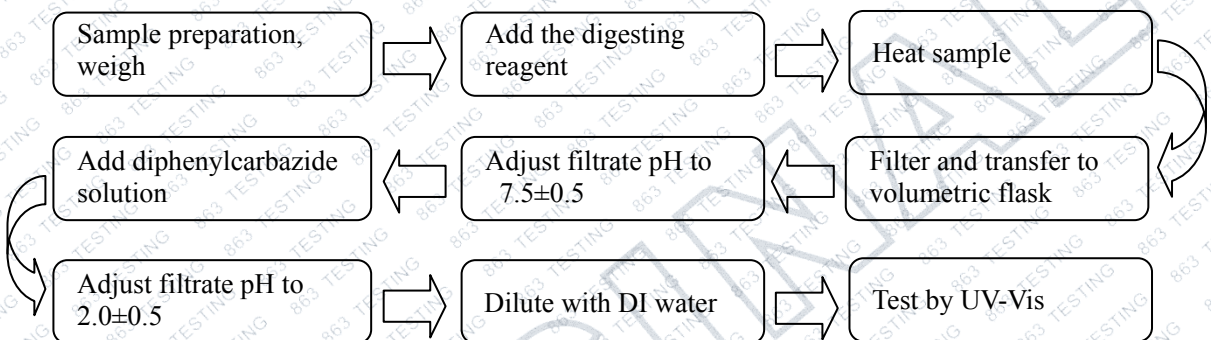
Page 4 of 5

Test Process:

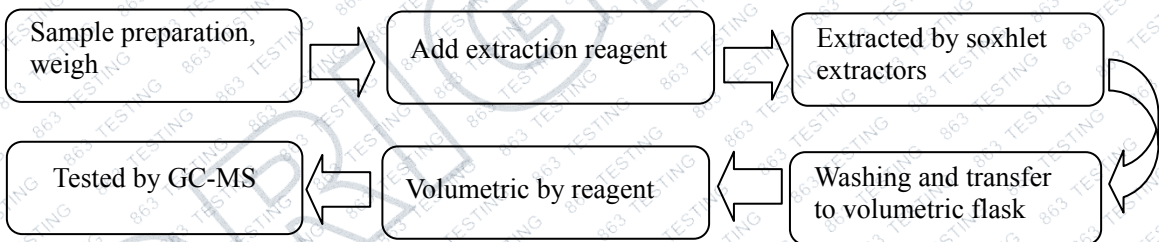
1. Test Lead (Pb), Cadmium (Cd), Mercury (Hg) concentration:



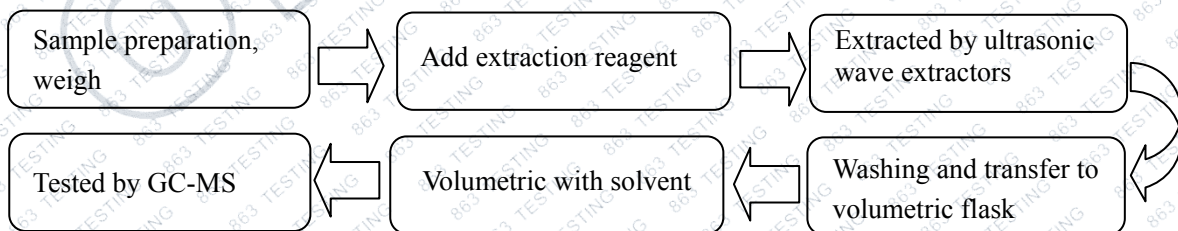
2. Test Hexavalent Chromium (Cr⁶⁺) concentration:



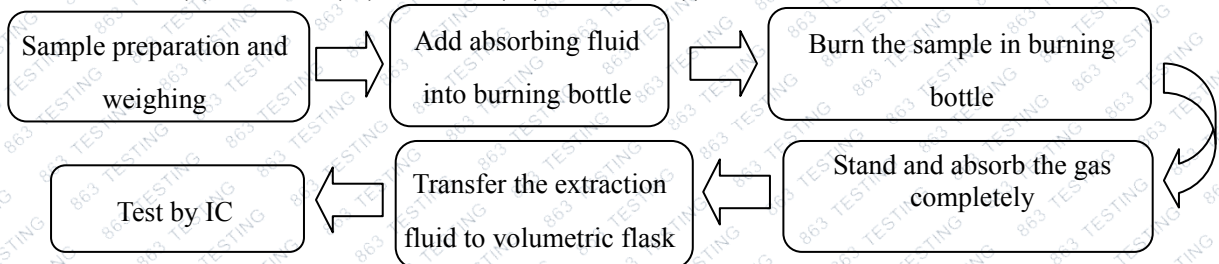
3. Test PBBs, PBDEs concentration:



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



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



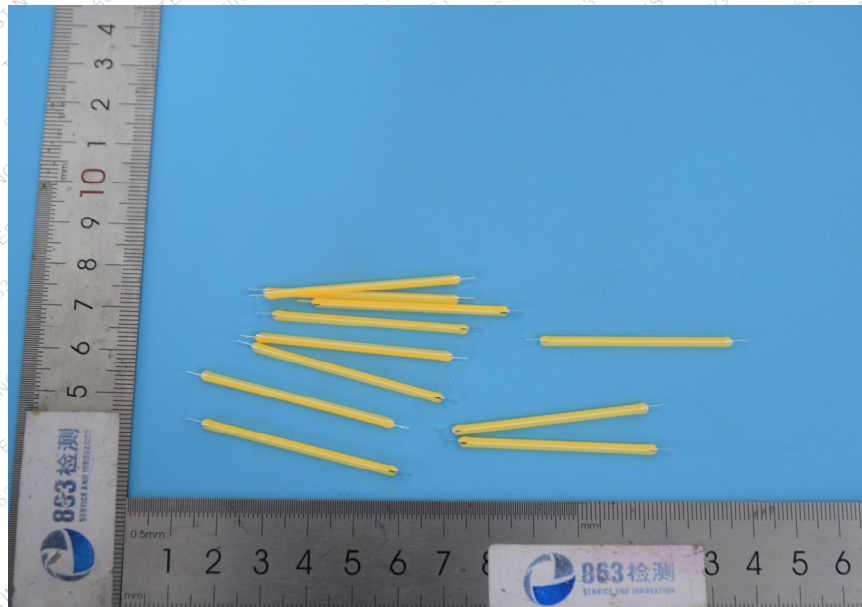
Test Report

Report No: SAC2019-06228-21E

Date: Nov. 14, 2019

Page 5 of 5

Photo of the sample



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

This report is invalid without the Special Seal of the company. Any unauthorized alteration, forgery or falsification of the content or appearance of this report is unlawful. This report shall not be altered, increased or deleted. Without the approval of the company, the report cannot be reproduced except in full. The results shown in this report is only responsible for the sample(s) tested.

In the People's Republic of China, if the report is not stamped with the CMA seal, that means the test report is only used for scientific research, education, internal quality control, product research and development, and is only for internal reference.

The information of the sample is provided and confirmed by the customer. The company shall not be responsible for confirming the accuracy, suitability, and/or completeness of the information.

If the client has any objection to the test report, it shall lodge a complaint within 3 months from the date of receiving the test report.

Authenticity query URL of report : www.szsac.com Anti-counterfeiting code : hdlano