



# Test Report

Report No. : SZC18102280441-6

Date: Oct. 25, 2018

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Applicant: FOSHAN BLUE ROCKET ELECTRONICS CO., LTD

Address: NO.45 GUXIN ROAD, CHANCHENG DISTRICT, FOSHAN, GUANGDONG, P.R.C.CHINA

## Report on the submitted sample(s) said to be:

Sample Name: Semiconductor Device

Sample Description: Black body with golden metal plate

Sample Model: DFN

Sample No.: QT1810228044106

Sample Received Date: Oct. 22, 2018

Testing Period: Oct. 22, 2018 - Oct. 25, 2018

## Test Requested:

1. As specified by client, to determine the Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP content in the submitted sample.
2. As specified by client, to determine the Fluorine(F), Chlorine(Cl), Bromine(Br), Iodine(I) content in the submitted sample.

## Test Method:

Please refer to the following page(s).

## Test Result:

Please refer to the following page(s).

## Conclusion:

1. Based on the performed tests on submitted samples, the results of Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863.
2. Based on the performed tests on submitted samples, the results of halogen comply with the limits as set by IEC61249-2-21.

Signed for and on behalf of HCT

Michael





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**Test Result(s):**

**1. Test results for Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP**

Unit: mg/kg

Test Items	Test Method/ Equipment	MDL	Content	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863	
<b>Lead(Pb)</b>	IEC 62321-5:2013. ICP-OES/AAS	2	N.D.	1000	
<b>Cadmium(Cd)</b>		2	N.D.	100	
<b>Mercury(Hg)</b>	IEC 62321-4:2013 +AMD1:2017. ICP-OES	2	N.D.	1000	
<b>Hexavalent Chromium(Cr(VI))</b>	IEC 62321-5:2013/ IEC 62321-7-2:2017. ICP-OES/AAS UV-VIS	8	N.D.	1000	
Mono-bromobiphenyl	IEC 62321-6:2015. GC-MS	5	N.D.	—	
Di-bromobiphenyl		5	N.D.		
Tri-bromobiphenyl		5	N.D.		
Tetra-bromobiphenyl		5	N.D.		
Penta-bromobiphenyl		5	N.D.		
Hexa-bromobiphenyl		5	N.D.		
Hepta-bromobiphenyl		5	N.D.		
Octa-bromobiphenyl		5	N.D.		
Nona-bromobiphenyl		5	N.D.		
Deca-bromobiphenyl		5	N.D.		
<b>Polybrominated Biphenyls(PBBs)</b>		—	N.D.		1000
Mono-bromodiphenyl ether		IEC 62321-6:2015. GC-MS	5		N.D.
Di-bromodiphenyl ether	5		N.D.		
Tri-bromodiphenyl ether	5		N.D.		
Tetra-bromodiphenyl ether	5		N.D.		
Penta-bromodiphenyl ether	5		N.D.		
Hexa-bromodiphenyl ether	5		N.D.		
Hepta-bromodiphenyl ether	5		N.D.		
Octa-bromodiphenyl ether	5		N.D.		
Nona-bromodiphenyl ether	5		N.D.		
Deca-bromodiphenyl ether	5		N.D.		
<b>Polybrominated DiphenylEthers(PBDEs)</b>	—	N.D.	1000		



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Test Items	Test Method/Equipment	MDL	Content	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863
Dibutyl phthalate (DBP)	IEC 62321-8:2017, GC-MS	30	N.D.	1000
Butylbenzyl phthalate (BBP)		30	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP)		30	N.D.	1000
Di-iso-butyl phthalate(DIBP)		30	N.D.	1000

## 2. Test results for Fluorine(F), Chlorine(Cl), Bromine(Br), Iodine(I)

Unit: mg/kg

Test Items	Test Method/Equipment	MDL	Content	IEC61249-2-21 Limit
Fluorine(F)	EN 14582:2016, IC	50	N.D.	—
Chlorine(Cl)		50	N.D.	900
Bromine(Br)		50	N.D.	900
Iodine(I)		50	N.D.	—
Total(Cl+Br)		—	N.D.	1500

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

MDL=method detection limit

“—” =Not regulated

N.D.=not detected(less than method detection limit)

Results shown as N.D. are ignored in the sum calculation.

The specimen is tested as a whole (part) which according to the applicant's request.

The detected Chromium (Cr) content is "N.D.", therefore, the Hexavalent Chromium (Cr (VI)) content is "N.D.",

No need for validation test of the Hexavalent Chromium (Cr (VI)).

If Chromium (Cr) content exceeds Hexavalent Chromium (Cr (VI)) method detection limit, Validation test of the Hexavalent Chromium (Cr (VI)) is required.



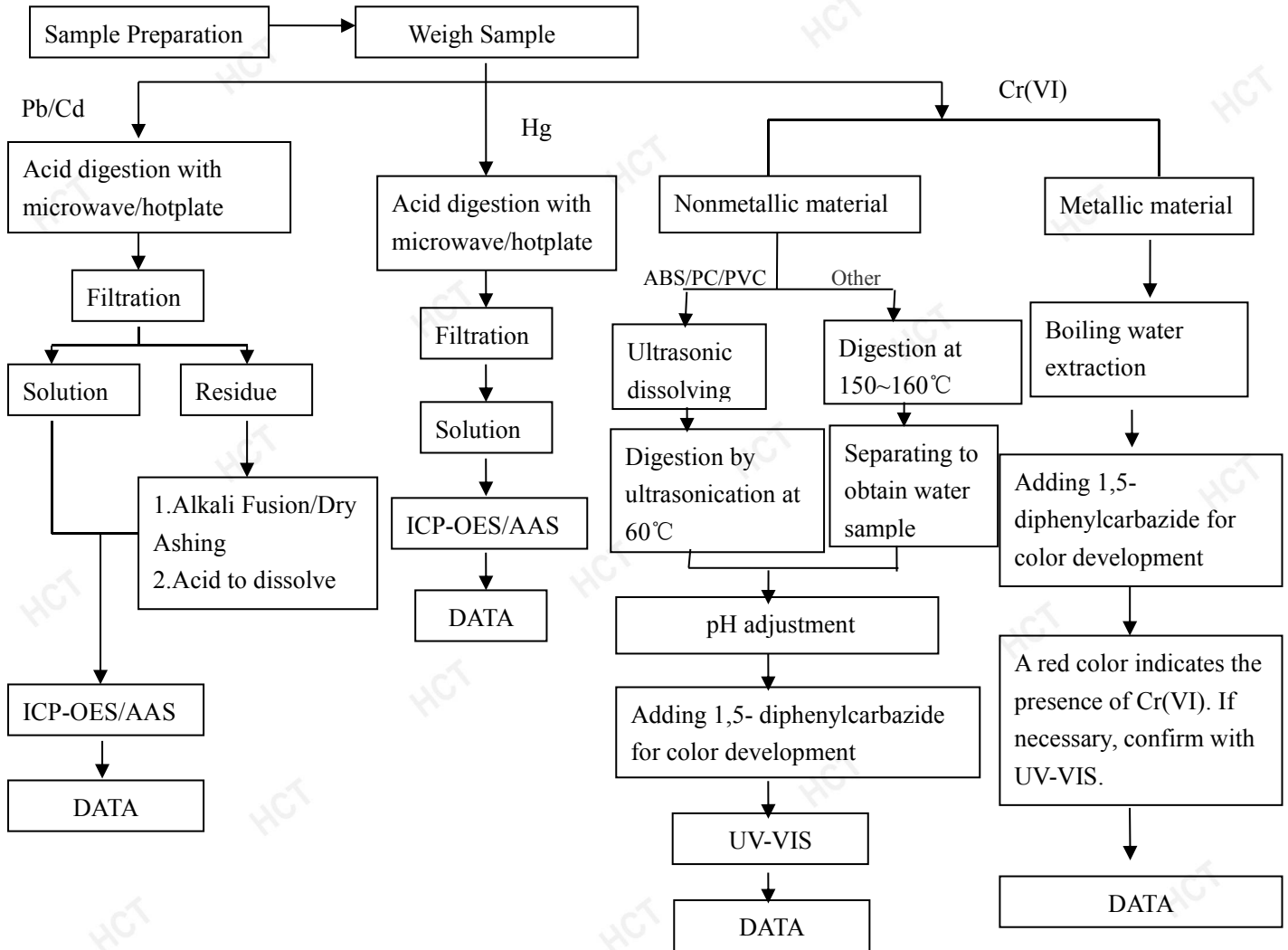
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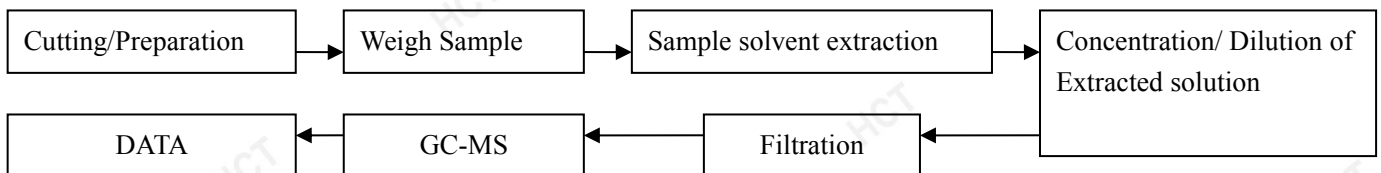
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## Test Flow Chart (Pb, Cd, Hg, Cr(VI), PBBs, PBDEs)



These sample were dissolved totally by pre-conditioning method according to above flow chart(Cr(VI) test method excluded)

### PBBs/PBDEs



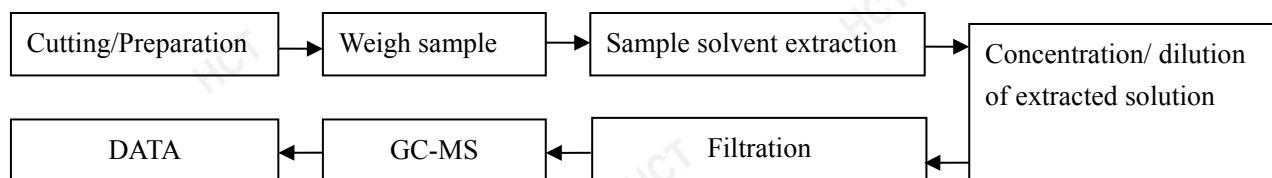
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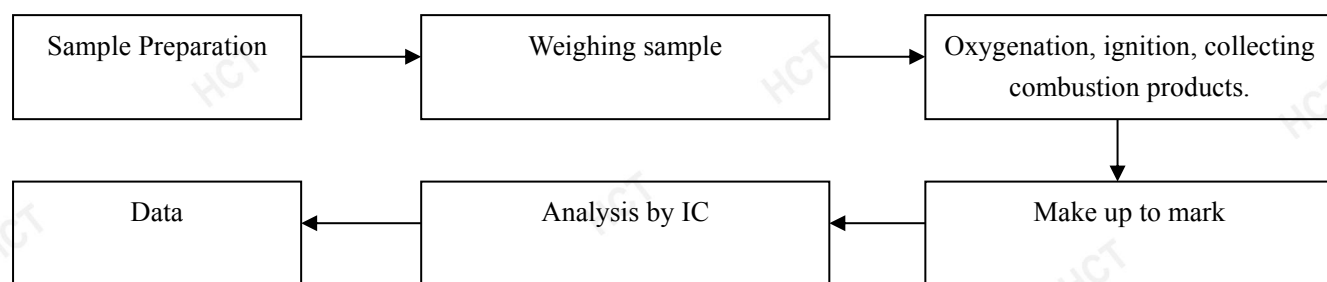
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## Test Flow Chart (DBP, BBP, DEHP, DIBP)



## Test Flow Chart (Fluorine(F), Chlorine(Cl), Bromine(Br), Iodine(I))



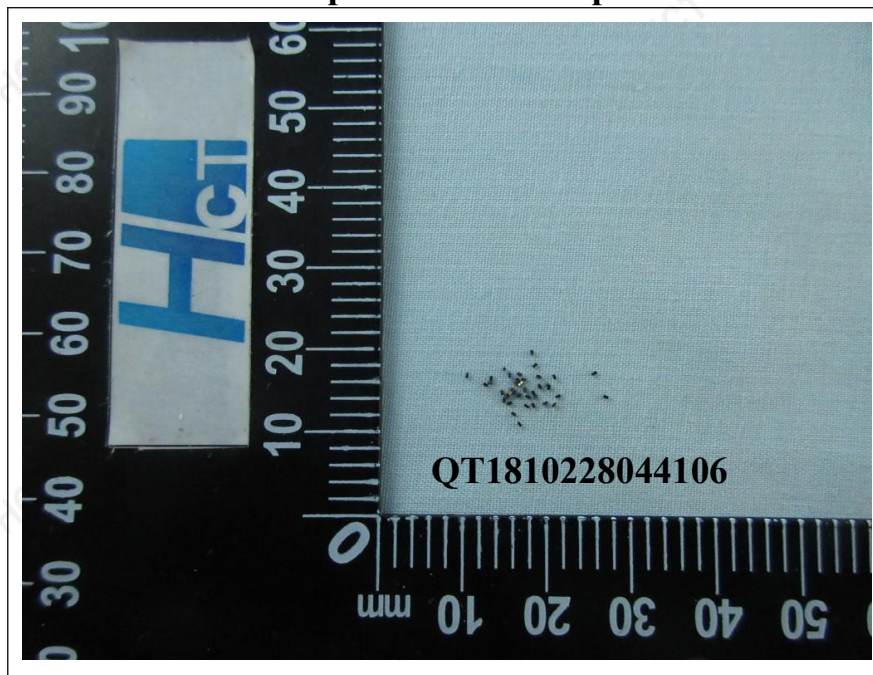
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## The photo of the sample



\*\*\*End\*\*\*

This report will go into effect with HCT stamp. This report could not be revised. This report is only responsible for the test result of submitted samples. Without written authorization, any copy of this report for propaganda is invalid.

