

Test Report

Report No. A218014256010101

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Applicant FOSHAN BLUE ROCKET ELECTRONICS CO.,LTD

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

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client

Sample Name ABF Semiconductor Device(Solder Bonding)
Sample Received Date Aug. 10, 2018
Testing Period Aug. 10, 2018 to Aug. 22, 2018

Test Requested As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP) in the submitted sample(s).

Test Method/Test Result(s) Please refer to the following page(s).

Conclusion

Tested Sample	According to directive	Result
Submitted Sample	RoHS Directive 2011/65/EU with amendment (EU) 2015/863	Pass

Pass means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.

Tested by Guangneng Yang

Reviewed by Guangye Feng



Approved by Qinghong Wan
Qinghong Wan
Technical Manager

Date Aug. 22, 2018

No. R229111240

Centre Testing International Group Co.,Ltd. Shunde Branch

Yongying Building, Section 2, No.8, East of Rongqi Avenue, Ronggui, Shunde District, Foshan, Guangdong, China

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Test Method

Tested Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
	IEC 62321-7-1:2015	UV-Vis
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS

Test Result(s)

Tested Item(s)	Result		MDL	Limit
	001	002		
Lead (Pb)	50046 mg/kg [#]	N.D.	2 mg/kg	1000 mg/kg
Cadmium (Cd)	N.D.	N.D.	2 mg/kg	100 mg/kg
Mercury (Hg)	N.D.	N.D.	2 mg/kg	1000 mg/kg
Hexavalent Chromium (Cr(VI))	N.D.	--	8 mg/kg	1000 mg/kg
	--	N.D. ▼	0.10 µg/cm ² (LOQ)	1000 mg/kg

Tested Item(s)	Result		MDL	Limit
	001			
Polybrominated Biphenyls(PBBs)				
Monobromobiphenyl	N.D.		5 mg/kg	1000 mg/kg
Dibromobiphenyl	N.D.		5 mg/kg	
Tribromobiphenyl	N.D.		5 mg/kg	
Tetrabromobiphenyl	N.D.		5 mg/kg	
Pentabromobiphenyl	N.D.		5 mg/kg	
Hexabromobiphenyl	N.D.		5 mg/kg	
Heptabromobiphenyl	N.D.		5 mg/kg	
Octabromobiphenyl	N.D.		5 mg/kg	
Nonabromobiphenyl	N.D.		5 mg/kg	
Decabromobiphenyl	N.D.		5 mg/kg	

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Tested Item(s)	Result	MDL	Limit
	001		
Polybrominated Diphenyl Ethers (PBDEs)			
Monobromodiphenyl ether	N.D.	5 mg/kg	1000 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg	
Tribromodiphenyl ether	N.D.	5 mg/kg	
Tetrabromodiphenyl ether	N.D.	5 mg/kg	
Pentabromodiphenyl ether	N.D.	5 mg/kg	
Hexabromodiphenyl ether	N.D.	5 mg/kg	
Heptabromodiphenyl ether	N.D.	5 mg/kg	
Octabromodiphenyl ether	N.D.	5 mg/kg	
Nonabromodiphenyl ether	N.D.	5 mg/kg	
Decabromodiphenyl ether	N.D.	5 mg/kg	

Tested Item(s)	Result	MDL	Limit
	001		
Phthalates (DBP, BBP, DEHP, DIBP)			
Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg

Tested Sample/Part Description

- 001 Black body with yellow printing(Tested as a whole)
- 002 Metal with silvery plating

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- Remark:**
- The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.
 - The sample(s) 001 was tested as a whole, because it's impossible to disassemble or separate it by current equipment and technology. The result(s) shown on this report may be different from the content of any homogeneous material.
 - MDL = Method Detection Limit
 - N.D. = Not Detected (<MDL or LOQ)
 - mg/kg = ppm = parts per million
 - LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is $0.10 \mu\text{g}/\text{cm}^2$
 - ∇ The sample is negative for Cr(VI) – The Cr(VI) concentration is below $0.10 \mu\text{g}/\text{cm}^2$. The coating is considered a non-Cr(VI) based coating.
 - #: According to the client's statement, the material of the sample(s) fall into exemption items 7(a) according to EU Directive 2011/65/EU: Lead in high melting temperature type solders(i.e. lead-based alloys containing 85% by weight of more lead).

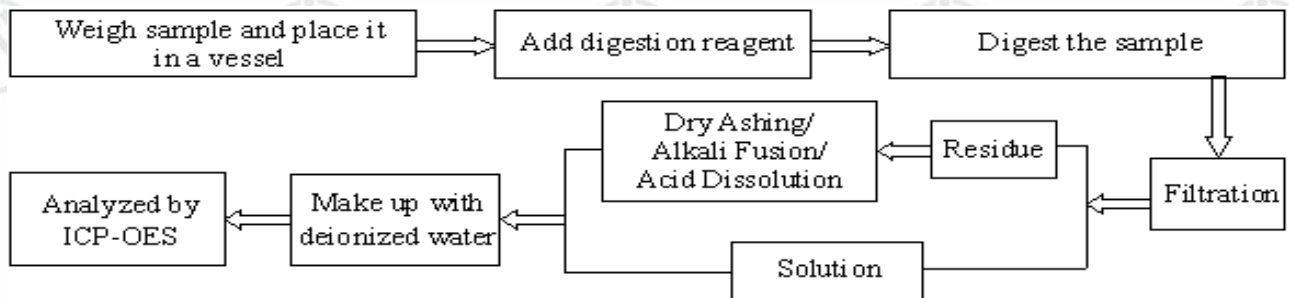
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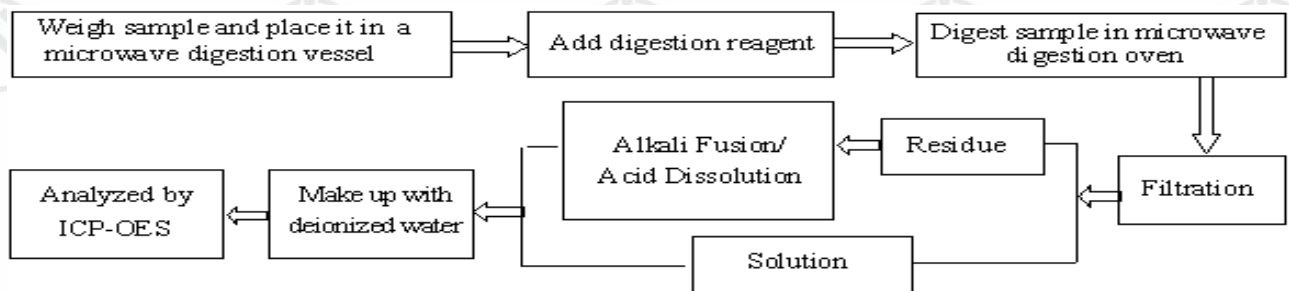
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Test Process

1. Cadmium(Cd), Lead(Pb), Chromium(Cr)

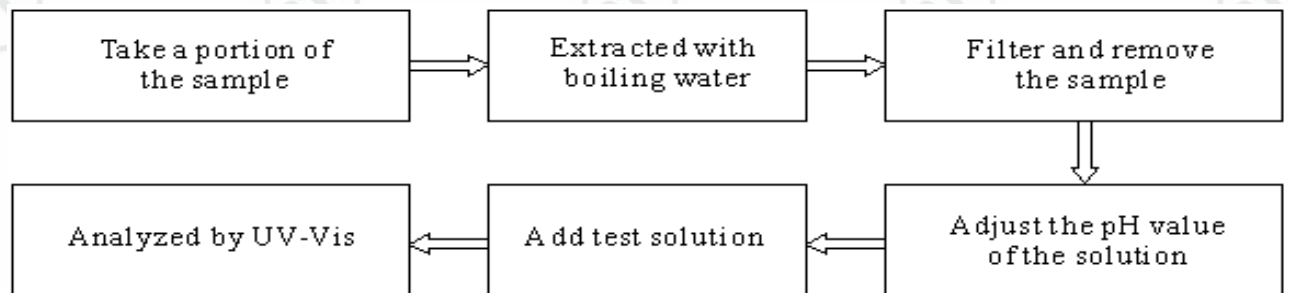


2. Mercury(Hg)

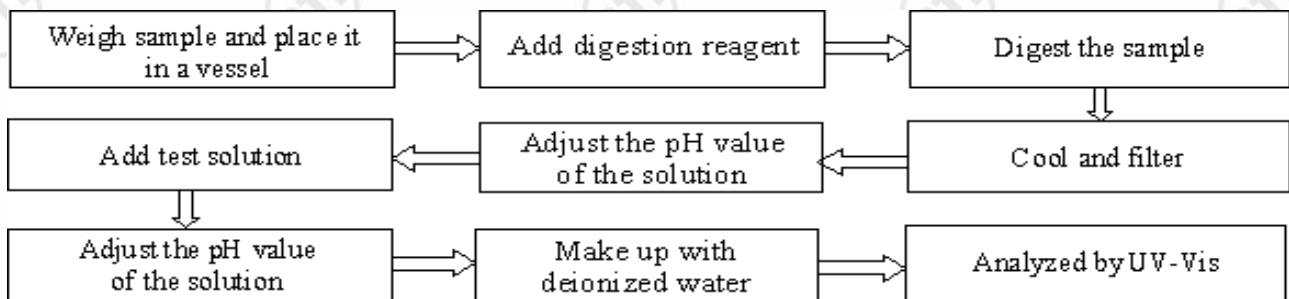


3. Hexavalent Chromium(Cr(VI))

(1) IEC 62321-7-1:2015



(2) IEC 62321-7-2:2017

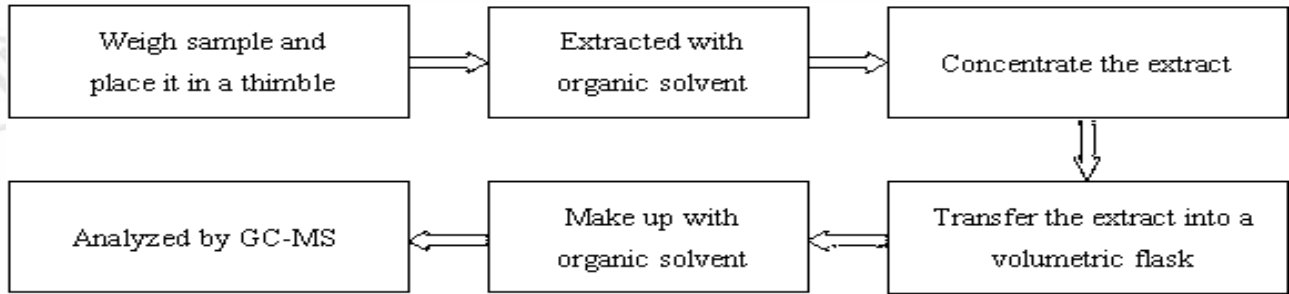


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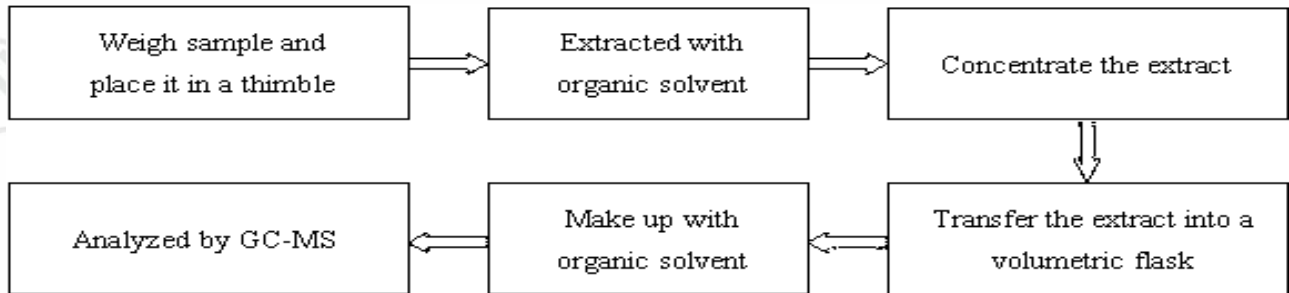
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4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)



5. Phthalates (DBP, BBP, DEHP, DIBP)



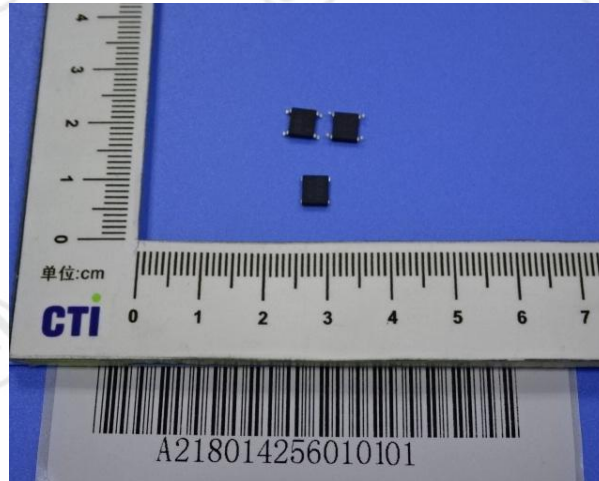
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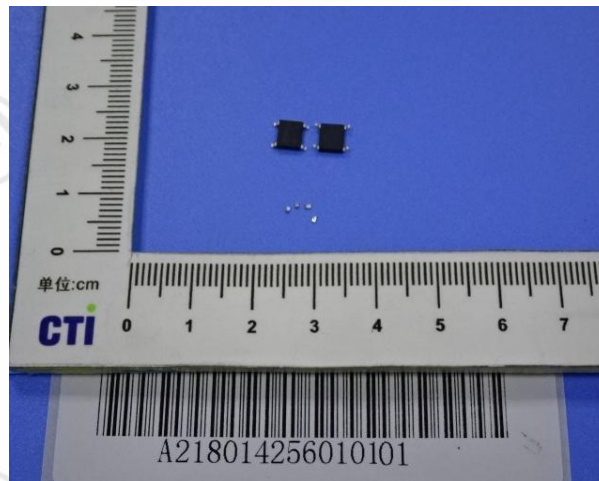
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Photo(s) of the sample(s)

001



002



*** End of Report ***

Statement:

1. This report is considered invalidated without approval signature, special seal and the seal on the perforation;
2. The sample(s) and sample information was/were provided by the client who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.