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Applicant : Address :

The submitted sample and sample information was/were submitted and identified by/on the behalf

of the client

Sample name

Sample received date : Sep. 09, 2019

**Testing period** : Sep. 09, 2019 - Sep. 18, 2019

**Test requested**: 1. As specified by client, to screen Lead(Pb), Cadmium(Cd),

Mercury(Hg), Chromium(Cr) and Bromine(Br) in the submitted

sample(s) by XRF.

2. As specified by client, when screening results exceed the XRF screening limit in IEC 62321-3-1:2013, further use of chemical methods are required to test the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs) in the

submitted samples.

3. As specified by client, to test the Di-isobutyl phthalate(DIBP),

Dibutyl phthalate(DBP), Benzyl butyl phthalate(BBP),

Bis(2-ethyl(hexyl) phthalate)(DEHP)in the submitted sample(s).

According to the RoHS Directive 2011/65/EU and amendment Commission Delegated Directive (EU) 2015/863

\*\*\*\*\*For more detailed information, please refer to the next page\*\*\*\*\*

Tested by Xingping Li

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APPROVED

TESTIVA PPROVED by

Hanyao Chen

Lab:Shenzhen BCTC Testing Co.,Ltd.

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### **Test Method:**

### A. Screening test by XRF spectroscopy

XRF screening limits in mg/kg for regulated elements according to IEC 62321-3-1:2013.

BCIL	Limit of IEC 62321-3	MDL		
Element	Polymers and metals	Composite material	Polymers	Other material
Pb	BL≤(700-3σ) <x <(1300+3σ)<br="">≤OL</x>	BL≤(500-3σ) <x <(1500+3σ)<br="">≤OL</x>	10 mg/kg	50 mg/kg
Cd	BL≤(70-3σ) <x <(130+3σ)<br="">≤OL</x>	LOD≤(50-3σ) <x <(150+3σ)<br="">≤OL</x>	10 mg/kg	50 mg/kg
Hg	BL≤(700-3σ) <x <(1300+3σ)<br="">≤OL</x>	BL≤(500-3σ) <x <(1500+3σ)<br="">≤OL</x>	10 mg/kg	50 mg/kg
Cr	BL≤(700-3σ)< X	BL≤(500-3σ)< X	10 mg/kg	50 mg/kg
Br	BL≤(300-3σ)< X	BL≤(250-3σ)< X	10 mg/kg	50 mg/kg

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#### Note:

- BUTC -BL = Under the XRF screening limit
- -OL = Further chemical test will be conducted while result is above the screening limit
- -X= The symbol "X" marks the region where further investigation is necessary
- $-3\sigma$ = The reproducibility of analytical instruments
- -LOD= Detection limit
- -"--" = Not regulated.

### **B. Chemical Test**

Test Item(s)	Test Method	Measured Equipment(s)	MDL	Limit
Lead (Pb)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg	1000 mg/kg
Cadmium (Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg	100 mg/kg
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017	ICP-OES	2 mg/kg	1000 mg/kg
Havayalant Chromium Cr(\/I)	IEC 62321-7-1:2015 Ed.1.0	111/1/16	10	1000 mg/kg
Hexavalent Chromium Cr(VI)	IEC 62321-7-2:2017 Ed.1.0	UV-VIS	8 mg/kg	1000 mg/kg
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg	1000 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg	1000 mg/kg
Phthalates	IEC 62321-8:2017 Ed.1.0	GC-MS	50 mg/kg	1000 mg/kg

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### **Test Results:**

Sample No.	Sample Description	Tested Items	XRF Screening Test Unit (mg/kg)	Chemical Test Unit (mg/kg)	Conclusion
BCI		Pb	BL	1	
		Cd	BL	CTC /	
1	Black plastic	Hg	BL	1	PASS
		Cr(Cr(VI))	BL	1 0.0	EC.
		Br(PBBs&PBDEs)	BL	1	
		Pb	BL	/	
- 10	BCTC	Cd	BL	1	
2	Black bamboo	Hg	BL	artC	PASS
	123	Cr(Cr(VI))	BL	1	
		Br(PBBs&PBDEs)	BL	1	-rTC
C		Pb	BL	1	Bri
		Cd	BL	1	
3	Brown tape	Hg	BL	1	PASS
	Bo	Cr(Cr(VI))	BL	1-95	
		Br(PBBs&PBDEs)	BL	7	
		Pb	BL	1	
-10		Cd	BL	1	BCIT
4	Black EVA	Hg	BL	/	PASS
		Cr(Cr(VI))	BL BCT		
	Bri	Br(PBBs&PBDEs)	BL	1	
		Pb	BL	BL	10
		Cd	BL	1	
5	Red wire	Hg	BL	1	PASS
BC	10	Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	BL	XCTC1	
	8	Pb	BL	1	
		Cd	BL	1	BCTC
6	Black wire	Hg	BL	1	PASS
		Cr(Cr(VI))	BL	1	
	BCT'C	Br(PBBs&PBDEs)	BL	1	
		Pb	BL	-c/sC	
		Cd	BL	1	
7	Silver battery	Hg	BL	/	PASS
RCTC		Cr(Cr(VI))	BL	/	pu.
10	1 <del> </del>	Br(PBBs&PBDEs)			1

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	100				
		Pb	BL	1	
		Cd	BL	1	-
8	Green PCB	Hg	BL	1	PASS
Bri		Cr(Cr(VI))	BL	1	
	-10	Br(PBBs&PBDEs)	/ BC	1	
	BCIC	Pb	BL	/	
		Cd	BL	/ BCT	C
9	LED	Hg	BL	1	PASS
		Cr(Cr(VI))	BL	1	
- 7	CIL	Br(PBBs&PBDEs)	BL	1	
		Pb	BL	aCT4	
	BC	Cd	BL	1	
10	Silver tin	Hg	BL	1	PASS
C		Cr(Cr(VI))	BL	1	30
		Br(PBBs&PBDEs)	BL	1	
	BCTC	Pb	BL	1	
		Cd	BL	-1-TC	
11	IC HT3062	Hg	BL	1	PASS
		Cr(Cr(VI))	BL	/	-CTC
OFTE		Br(PBBs&PBDEs)	BL	/	BCIC
30		Pb	BL	1	
	RCTC	Cd	BL	1	
12	IC PB0059	Hg	BL	1	PASS
		Cr(Cr(VI))	BL	1 800	
		Br(PBBs&PBDEs)	BL	1	
	ró	Pb	BL	1	BC
Br		Cd	BL	1	
13	Inductance	Hg	BL	G 1 - 1	PASS
	b.	Cr(Cr(VI))	BL	1	
		Br(PBBs&PBDEs)	BL	1	BCIC
		Pb	BL	1	
	-45	Cd	BL	/	
14	Switch	Hg	BL	1	PASS
		Cr(Cr(VI))	BL	BCI	
		Br(PBBs&PBDEs)	BL	/	
			52	'	gC1-

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C			Pb	BL	/	
			Cd	BL	/	
	15	USB metal	Hg	BL	/	PASS
	161	.,1	Cr(Cr(VI))	BL	1	
			Br(PBBs&PBDEs)	BL	301-1	
		BCI	Pb	BL	/	
			Cd	BL	/ (3)	CIC
CIL	16	Type-C metal	Hg	BL	1	PASS
		BCTC	Cr(Cr(VI))	BL	/	
		BCIC	Br(PBBs&PBDEs)	BL	1	
			Pb	BL	BOTT	
			Cd	BL	1	- 1
	17	Micro metal	Hg	TC BL	/	PASS
8	CIC	_	Cr(Cr(VI))	BL	/	D
			Br(PBBs&PBDEs)	BL	/	
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Tested Item(s)	Results Unit (mg/kg)				
- TTC			1-17		BC
Di-isobutyl phthalate(DIBP)			N.D.		
CAS #:84-69-5			N.D.		
Dibutyl phthalate(DBP)			ND		
CAS #:84-74-2	RCIC		N.D.	BCTC	
Benzylbutyl phthalate(BBP)	-		N.D.		
CAS #:85-68-7		MOTE	N.D.		
Bis(2-ethyl(hexyl) phthalate)(DEHP)		D.C.	N.D.		
CAS #:117-81-7			N.D.	TC	

### Note:

- -MDL = Method Detection Limit
- -N.D. = Not Detected (<MDL)
- -mg/kg = ppm = parts per million
- -" / "= Not conducted.
- -Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than  $0.1 \mu g/cm^2$  with  $50 cm^2$  sample surface area used.

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-Positive = Presence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is equal to or greater than 0.13µg/cm² with 50cm² sample surface area used.

#### Remark:

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- The screening results are only used for reference.
- When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br Exclusively; When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.



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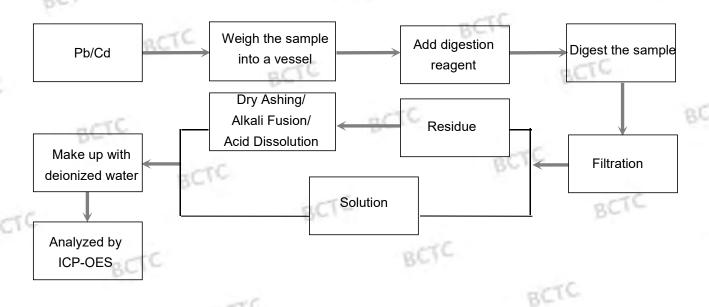
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#### **Test Process:**

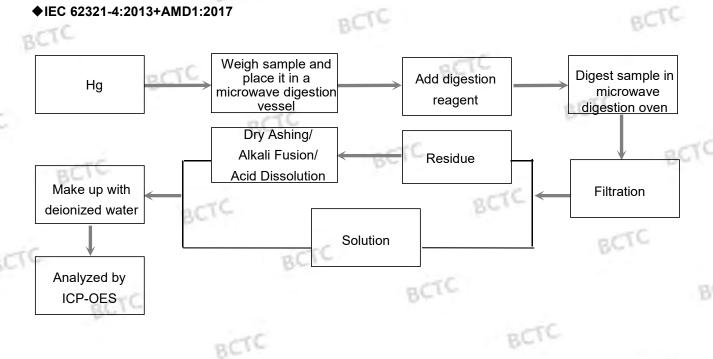
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The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.

♦IEC 62321-5:2013 Ed.1.0



#### ♦IEC 62321-4:2013+AMD1:2017



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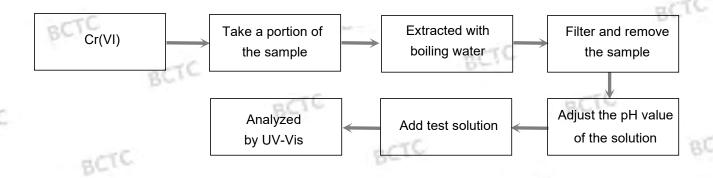
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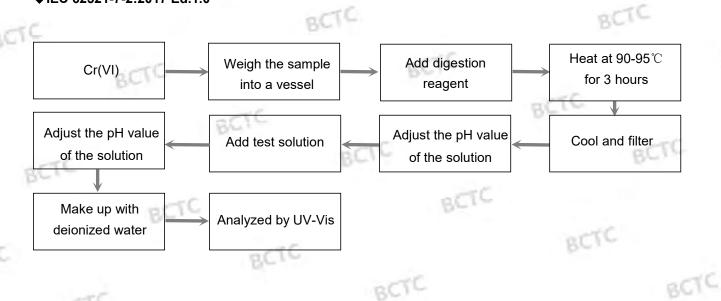
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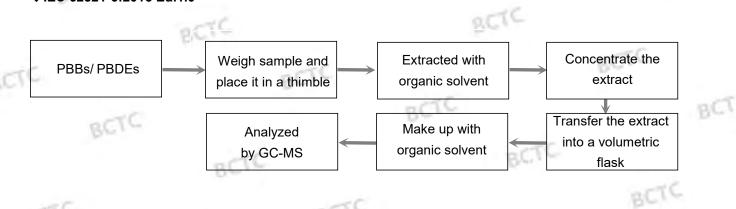
#### ♦IEC 62321-7-1:2015 Ed.1.0



### ♦IEC 62321-7-2:2017 Ed.1.0



### ◆IEC 62321-6:2015 Ed.1.0



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# **Test Report**

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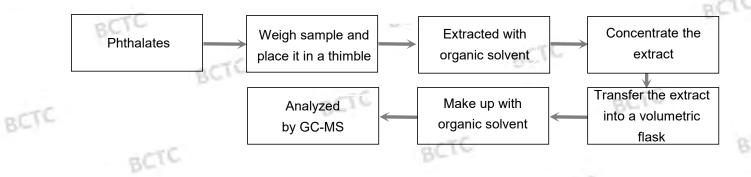
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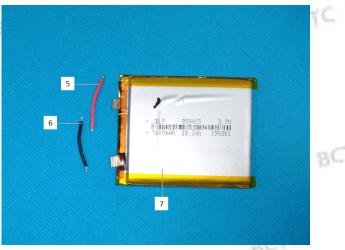
### ♦IEC 62321-8:2017 Ed.1.0



### **Photograph of Sample**







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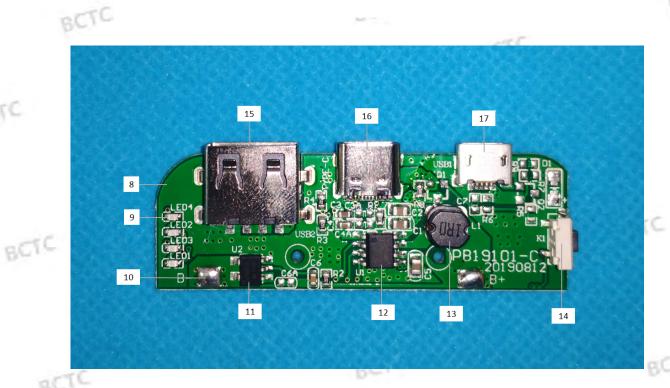
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Photo(s) of the tested component(s)



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