

# Test Report

No. BCTC-FYC190627012R

Date: June. 27, 2019

Page 1 of 9

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 : June. 17, 2019

Testing period : June. 17, 2019 - June. 27, 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



Approved by Hanyao Chen

Lab: Shenzhen BCTC Testing Co., Ltd.

Add: BCTC Building & 1-2F, East of B Building, pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao 'an District, Shenzhen, China  
Tel : (86)0755-33229357 Fax : 0755-33229357

Hotline  
400 -788 -9558  
www.bctc-lab.com

# Test Report

No. BCTC-FYC190627012R

Date: June. 27, 2019

Page 2 of 9

## Test Method:

### A. Screening test by XRF spectroscopy

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

Element	Limit of IEC 62321-3-1:2013. Unit (mg/kg)		MDL	
	Polymers and metals	Composite material	Polymers	Other material
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma)$ $\leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma)$ $\leq OL$	10 mg/kg	50 mg/kg
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma)$ $\leq OL$	$LOD \leq (50-3\sigma) < X < (150+3\sigma)$ $\leq OL$	10 mg/kg	50 mg/kg
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma)$ $\leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma)$ $\leq OL$	10 mg/kg	50 mg/kg
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$	10 mg/kg	50 mg/kg
Br	$BL \leq (300-3\sigma) < X$	$BL \leq (250-3\sigma) < X$	10 mg/kg	50 mg/kg

## Note:

-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

-3σ= 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
Hexavalent Chromium Cr(VI)	IEC 62321-7-1:2015 Ed.1.0	UV-VIS	--	1000 mg/kg
	IEC 62321-7-2:2017 Ed.1.0		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

Lab:Shenzhen BCTC Testing Co.,Ltd.

 Add:BCTC Building & 1-2F,East of B Building,pengzhou Industrial,Fuyuan 1st Road,  
 Qiaotou Community,Fuyong Street, Bao 'an District,Shenzhen,China  
 Tel : (86)0755-33229357 Fax : 0755-33229357

 Hotline  
 400 -788 -9558  
 www.bctc-lab.com

# Test Report

No. BCTC-FYC190627012R

Date: June. 27, 2019

Page 3 of 9

## Test Results:

Sample No.	Sample Description	Tested Items	XRF Screening Test Unit (mg/kg)	Chemical Test Unit (mg/kg)	Conclusion
1	White plastic	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
2	White wire jacket	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
3	Silver metal	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
4	Silver battery	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
5	Yellow wire	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
6	Red wire	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	

Lab:Shenzhen BCTC Testing Co.,Ltd.

 Add:BCTC Building & 1-2F,East of B Building,pengzhou Industrial,Fuyuan 1st Road,  
 Qiaotou Community,Fuyong Street, Bao 'an District,Shenzhen,China  
 Tel : (86)0755-33229357 Fax : 0755-33229357

 Hotline  
 400 -788 -9558  
 www.bctc-lab.com

# Test Report

No. BCTC-FYC190627012R

Date: June. 27, 2019

Page 4 of 9

7	Green pcb	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	
8	IC	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	
9	Silver connector	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
10	Led	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	
11	Capacitance	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	
12	Resistance	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	
13	Switch	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	

Lab:Shenzhen BCTC Testing Co.,Ltd.

 Add:BCTC Building & 1-2F,East of B Building,pengzhou Industrial,Fuyuan 1st Road,  
 Qiaotou Community,Fuyong Street, Bao 'an District,Shenzhen,China  
 Tel : (86)0755-33229357 Fax : 0755-33229357

 Hotline  
 400 -788 -9558  
 www.bctc-lab.com

# Test Report

No. BCTC-FYC190627012R

Date: June. 27, 2019

Page 5 of 9

Tested Item(s)	Results
	Unit (mg/kg)
	1+2
Di-isobutyl phthalate(DIBP) CAS #:84-69-5	N.D.
Dibutyl phthalate(DBP) CAS #:84-74-2	N.D.
Benzylbutyl phthalate(BBP) CAS #:85-68-7	N.D.
Bis(2-ethyl(hexyl) phthalate)(DEHP) CAS #:117-81-7	N.D.

## 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  $0.1\mu\text{g}/\text{cm}^2$  with  $50\text{cm}^2$  sample surface area used.

-Positive = Presence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is equal to or greater than  $0.13\mu\text{g}/\text{cm}^2$  with  $50\text{cm}^2$  sample surface area used.

## Remark:

- 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.

Lab:Shenzhen BCTC Testing Co.,Ltd.

Add:BCTC Building & 1-2F,East of B Building,pengzhou Industrial,Fuyuan 1st Road,  
Qiaotou Community,Fuyong Street, Bao 'an District,Shenzhen,China  
Tel : (86)0755-33229357 Fax : 0755-33229357



Hotline  
400 -788 -9558  
www.bctc-lab.com



# Test Report

No. BCTC-FYC190627012R

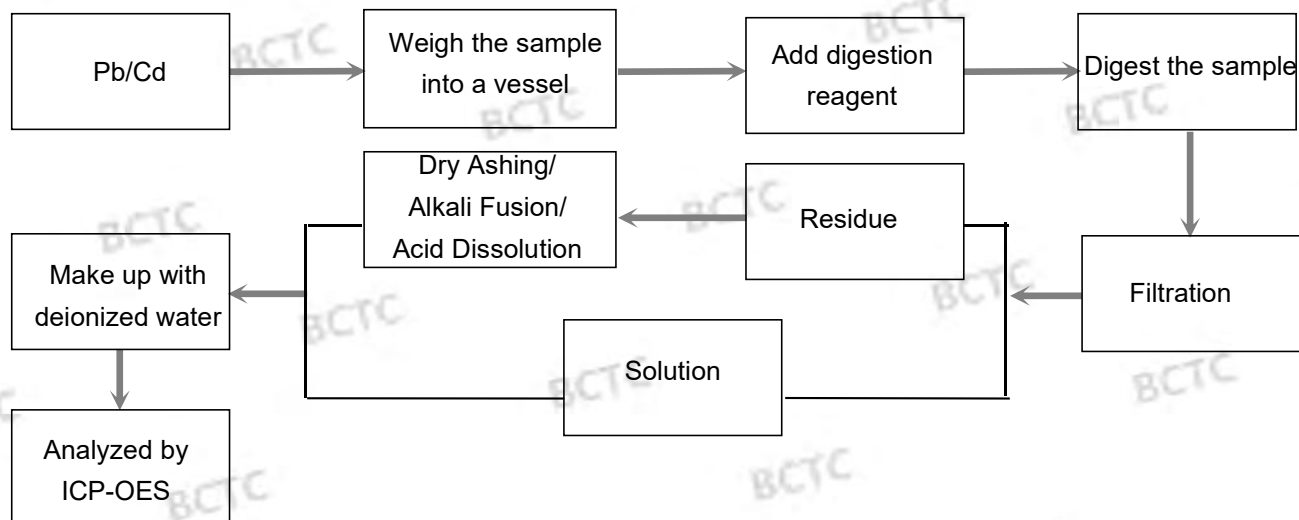
Date: June. 27, 2019

Page 6 of 9

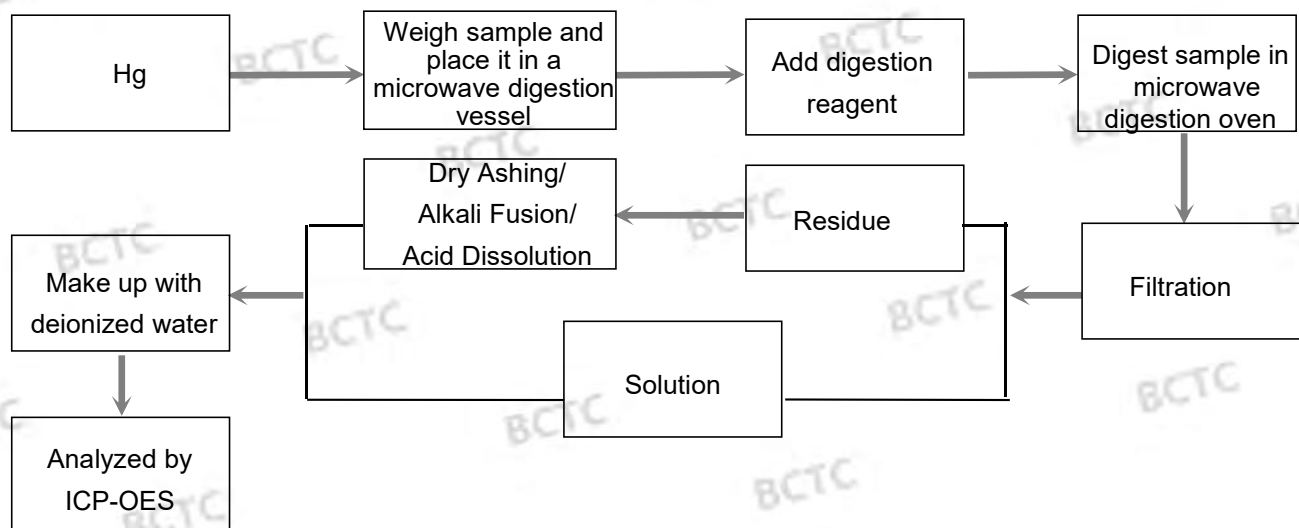
## Test Process:

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



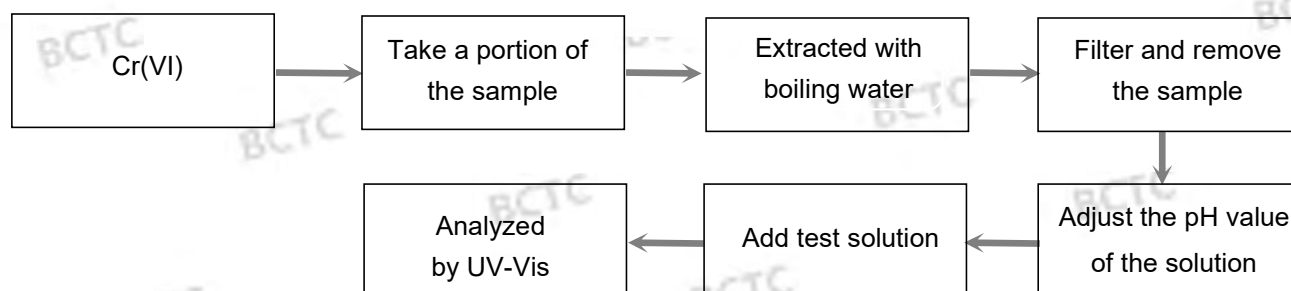
# Test Report

No. BCTC-FYC190627012R

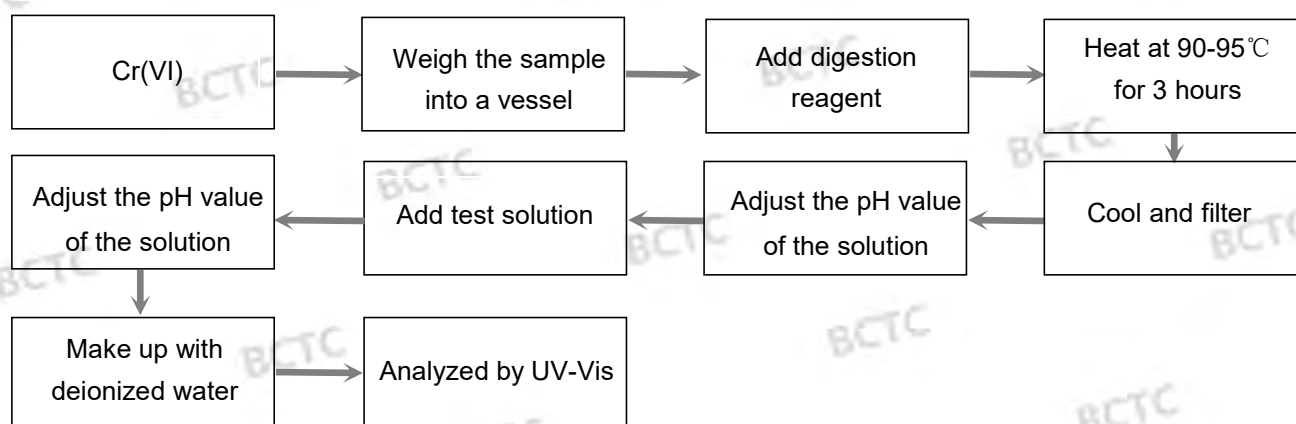
Date: June. 27, 2019

Page 7 of 9

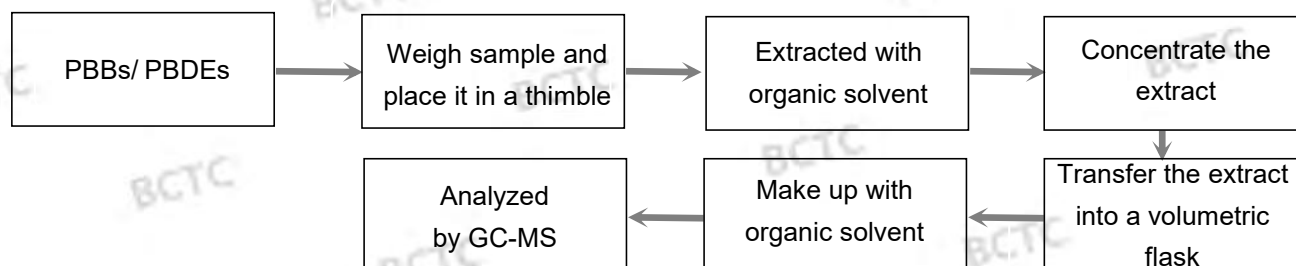
## ◆IEC 62321-7-1:2015 Ed.1.0



## ◆IEC 62321-7-2:2017 Ed.1.0



## ◆IEC 62321-6:2015 Ed.1.0



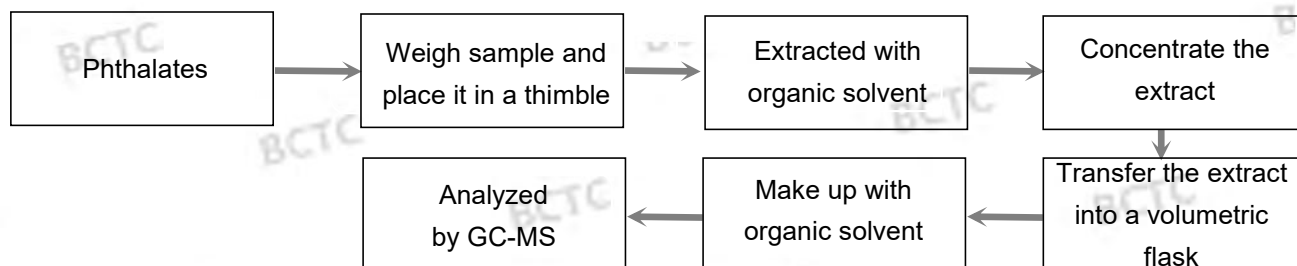
# Test Report

No. BCTC-FYC190627012R

Date: June. 27, 2019

Page 8 of 9

◆IEC 62321-8:2017 Ed.1.0



Photograph of Sample



Fig.1

Lab:Shenzhen BCTC Testing Co.,Ltd.

Add:BCTC Building & 1-2F,East of B Building,pengzhou Industrial,Fuyuan 1st Road,  
Qiaotou Community,Fuyong Street, Bao 'an District,Shenzhen,China  
Tel : (86)0755-33229357 Fax : 0755-33229357



Hotline  
400 -788 -9558  
www.bctc-lab.com



# Test Report

No. BCTC-FYC190627012R

Date: June. 27, 2019

Page 9 of 9

## Photo(s) of the tested component(s)



Fig.2

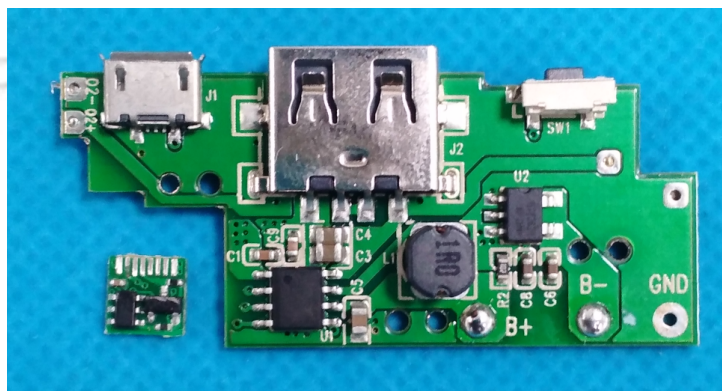



Fig.3

\*\*\*\*\* End of Report \*\*\*\*\*

The test report is effective only with both signature and the special stamp for inspection and testing. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of BCTC, this report can't be reproduced except in full.

**Lab:Shenzhen BCTC Testing Co.,Ltd.**

Add:BCTC Building & 1-2F,East of B Building,pengzhou Industrial,Fuyuan 1st Road,  
Qiaotou Community,Fuyong Street, Bao 'an District,Shenzhen,China  
Tel : (86)0755-33229357 Fax : 0755-33229357

 Hotline  
400 -788 -9558  
www.bctc-lab.com