

Test Report

Report No. : TCT180919C018

Date : Oct. 18, 2018

Page No.: 1 of 11

Applicant: Shenzhen Shuguan Electronic Technology Co.,Ltd.
Address: No.110 , Tenglong Industrial Zone, Guanhu Street, Longhua District,
Shenzhen City, P.R.C

The following sample was submitted and identified by/on behalf of the client as:

Sample Name: SGR/SIR/SGPD/SGPT/PD/PT SERIES
Client Reference Information: SGR/SIR/SGPD/SGPT/PD/PT SERIES
Sample Received Date: 2018.09.19
Testing Period: 2018.09.19—2018.10.18
Test Requested: As specified by client, to determine the Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP content(s) in the submitted sample.
Test Method: Please refer to the following page(s).
Test Result(s): Please refer to the following page(s).
Conclusion: Base upon the performed tests by submitted sample, the test results comply with the limits as set by Directive (EU) 2015/863 - Amendment of EU RoHS Directive 2011/65/EU (RoHS 2.0) Annex II.

Checked by



Noel Yin

Signed for and on behalf of TCT



Kim Zhang
Technical Manager



Test Report

Report No. : TCT180919C018

Date : Oct. 18, 2018

Page No.: 2 of 11

Test Results:

Pb, Cd, Hg, Cr(VI) Content(s)

No.	Test Items	Test Methods	Unit	MDL	Results		Limit
					9	10	
1	Pb	M1	mg/kg	2	N.D.	N.D.	1000
2	Hg	M2	mg/kg	2	N.D.	N.D.	1000
3	Cd	M1	mg/kg	2	N.D.	N.D.	100
4	Cr (VI) ▼	M3	ug/cm ²	0.10	N.D.	N.D.	-

Specimen Description:

9.Silvery color meta pin

10.Silvery color metal

- Note :
- MDL = Method Detection Limit.
 - "-" = Not Regulated.
 - N.D. = Not detected, less than MDL.
 - 1mg/kg = 1ppm = 0.0001%
 - M1: With reference to IEC62321-5:2013, Analysis was performed by ICP-OES.
 - M2: With reference to IEC62321-4:2013, Analysis was performed by ICP-OES.
 - M3: With reference to IEC62321-7-1:2015, Analysis was performed by UV-VIS.
 - ▼ = a. When the Cr (VI) concentration is > the 0,13 µg/cm², the sample is positive for Cr(VI) and considered to contain Cr(VI).
b. When the Cr (VI) concentration is N.D.(< the 0,10 µg/cm²), the sample is negative for Cr(VI) and considered a non-Cr(VI) based coating.
c. When the Cr (VI) concentration is ≥ the 0,10 µg/cm² and ≤ the 0,13 µg/cm², the result is considered to be inconclusive - Unavoidable coating variations may influence the determination.
 - Sample for Pb, Cd and Hg testing was completely dissolved.

Test Report

Report No. : TCT180919C018

Date : Oct. 18, 2018

Page No.: 3 of 11

Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP Content(s)

Tested Item(s)	Test Method/Instrument	MDL	Unit	Limit	Result(s)	
					1	2
Lead(Pb)	IEC62321-5:2013/ICP-OES	2	mg/kg	1000	N.D.	N.D.
Cadmium(Cd)	IEC62321-5:2013/ICP-OES	2	mg/kg	100	N.D.	N.D.
Mercury(Hg)	IEC62321-4:2013+AMD1:2017 /ICP-OES	2	mg/kg	1000	N.D.	N.D.
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017/UV-VIS	2	mg/kg	1000	N.D.	N.D.
Sum of PBBs	-	-	mg/kg	1000	N.D.	N.D.
Monobromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tribromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tetrabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Pentabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Hexabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Heptabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Octabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Nonabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Decabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Sum of PBDEs	-	-	mg/kg	1000	N.D.	N.D.
Monobromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tribromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tetrabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Pentabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Hexabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Heptabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Octabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Nonabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Decabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibutyl Phthalate (DBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Benzylbutyl Phthalate (BBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Bis-(2-ethylhexyl) Phthalate (DEHP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Diisobutyl Phthalate (DIBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.

Test Report

Report No. : TCT180919C018

Date : Oct. 18, 2018

Page No.: 4 of 11

Tested Item(s)	Test Method/Instrument	MDL	Unit	Limit	Result(s)	
					3	4
Lead(Pb)	IEC62321-5:2013/ICP-OES	2	mg/kg	1000	N.D.	N.D.
Cadmium(Cd)	IEC62321-5:2013/ICP-OES	2	mg/kg	100	N.D.	N.D.
Mercury(Hg)	IEC62321-4:2013+AMD1:2017 /ICP-OES	2	mg/kg	1000	N.D.	N.D.
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017/UV-VIS	2	mg/kg	1000	N.D.	N.D.
Sum of PBBs	-	-	mg/kg	1000	N.D.	N.D.
Monobromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tribromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tetrabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Pentabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Hexabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Heptabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Octabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Nonabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Decabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Sum of PBDEs	-	-	mg/kg	1000	N.D.	N.D.
Monobromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tribromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tetrabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Pentabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Hexabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Heptabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Octabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Nonabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Decabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibutyl Phthalate (DBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Benzylbutyl Phthalate (BBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Bis-(2-ethylhexyl) Phthalate (DEHP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Diisobutyl Phthalate (DIBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.

Test Report

Report No. : TCT180919C018

Date : Oct. 18, 2018

Page No.: 5 of 11

Tested Item(s)	Test Method/Instrument	MDL	Unit	Limit	Result(s)	
					5	6
Lead(Pb)	IEC62321-5:2013/ICP-OES	2	mg/kg	1000	N.D.	N.D.
Cadmium(Cd)	IEC62321-5:2013/ICP-OES	2	mg/kg	100	N.D.	N.D.
Mercury(Hg)	IEC62321-4:2013+AMD1:2017 /ICP-OES	2	mg/kg	1000	N.D.	N.D.
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017/UV-VIS	2	mg/kg	1000	N.D.	N.D.
Sum of PBBs	-	-	mg/kg	1000	N.D.	N.D.
Monobromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tribromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tetrabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Pentabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Hexabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Heptabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Octabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Nonabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Decabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Sum of PBDEs	-	-	mg/kg	1000	N.D.	N.D.
Monobromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tribromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tetrabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Pentabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Hexabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Heptabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Octabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Nonabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Decabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibutyl Phthalate (DBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Benzylbutyl Phthalate (BBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Bis-(2-ethylhexyl) Phthalate (DEHP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Diisobutyl Phthalate (DIBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.

Test Report

Report No. : TCT180919C018

Date : Oct. 18, 2018

Page No.: 6 of 11

Tested Item(s)	Test Method/Instrument	MDL	Unit	Limit	Result(s)	
					7	8
Lead(Pb)	IEC62321-5:2013/ICP-OES	2	mg/kg	1000	N.D.	N.D.
Cadmium(Cd)	IEC62321-5:2013/ICP-OES	2	mg/kg	100	N.D.	N.D.
Mercury(Hg)	IEC62321-4:2013+AMD1:2017 /ICP-OES	2	mg/kg	1000	N.D.	N.D.
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017/UV-VIS	2	mg/kg	1000	N.D.	N.D.
Sum of PBBs	-	-	mg/kg	1000	N.D.	N.D.
Monobromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tribromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tetrabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Pentabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Hexabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Heptabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Octabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Nonabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Decabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Sum of PBDEs	-	-	mg/kg	1000	N.D.	N.D.
Monobromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tribromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Tetrabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Pentabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Hexabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Heptabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Octabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Nonabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Decabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.	N.D.
Dibutyl Phthalate (DBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Benzylbutyl Phthalate (BBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Bis-(2-ethylhexyl) Phthalate (DEHP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.
Diisobutyl Phthalate (DIBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.	N.D.

Test Report

Report No. : TCT180919C018

Date : Oct. 18, 2018

Page No.: 7 of 11

Tested Item(s)	Test Method/Instrument	MDL	Unit	Limit	Result(s)
					11
Lead(Pb)	IEC62321-5:2013/ICP-OES	2	mg/kg	1000	N.D.
Cadmium(Cd)	IEC62321-5:2013/ICP-OES	2	mg/kg	100	N.D.
Mercury(Hg)	IEC62321-4:2013+AMD1:2017 /ICP-OES	2	mg/kg	1000	N.D.
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017/UV-VIS	2	mg/kg	1000	N.D.
Sum of PBBs	-	-	mg/kg	1000	N.D.
Monobromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Dibromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Tribromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Tetrabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Pentabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Hexabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Heptabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Octabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Nonabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Decabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Sum of PBDEs	-	-	mg/kg	1000	N.D.
Monobromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Dibromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Tribromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Tetrabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Pentabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Hexabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Heptabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Octabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Nonabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Decabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Dibutyl Phthalate (DBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.
Benzylbutyl Phthalate (BBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.
Bis-(2-ethylhexyl) Phthalate (DEHP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.
Diisobutyl Phthalate (DIBP)	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.

Test Report

Report No. : TCT180919C018

Date : Oct. 18, 2018

Page No.: 8 of 11

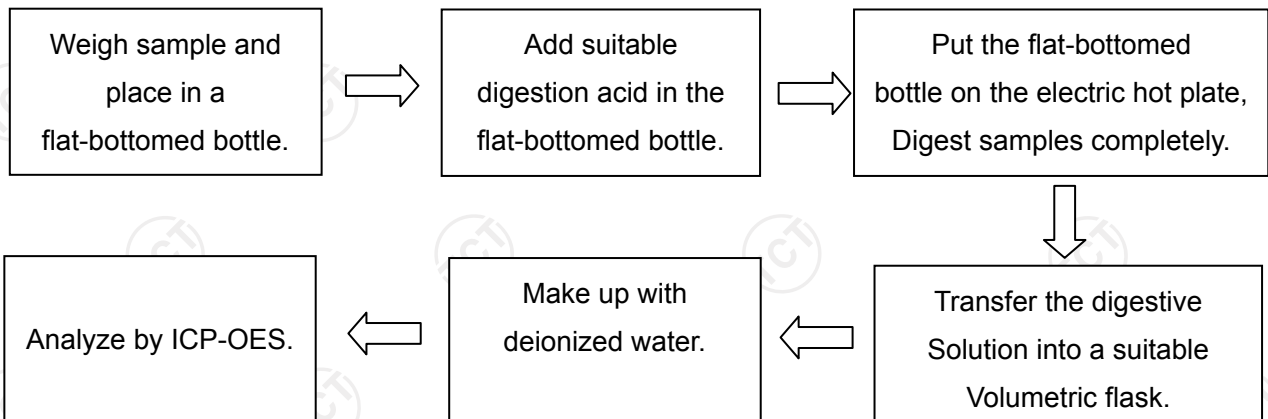
Specimen Description:

1. Black sample
2. Black sample
3. Black sample
4. Black sample
5. Black sample
6. Black sample
7. Black sample
8. Black sample
11. Black sample

- Note:
- MDL = Method Detection Limit
 - N.D. = Not Detected(<MDL)
 - 1mg/kg = 1ppm = 0.0001%
 - "-" = Not Regulated
 - Sample for Pb, Cd and Hg testing was completely dissolved

FLOW CHART

1. Test for Pb, Hg, Cd Content



Sample Material	Digestion Acid
Glass	HNO3/HF
Plastic	H2SO4, H2O2, HNO3, HCl
Others	Any acid to total digestion.

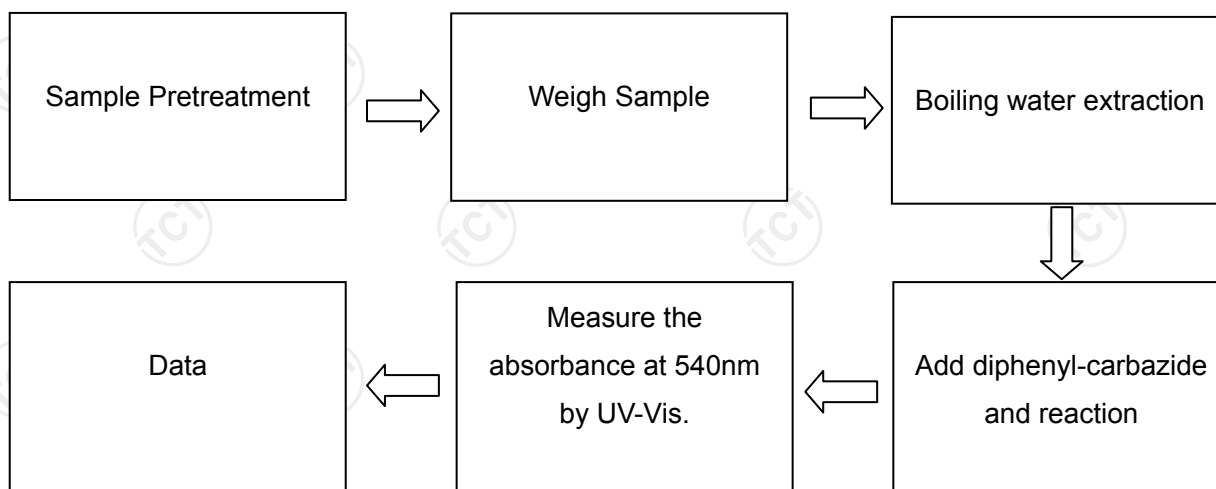
Test Report

Report No. : TCT180919C018

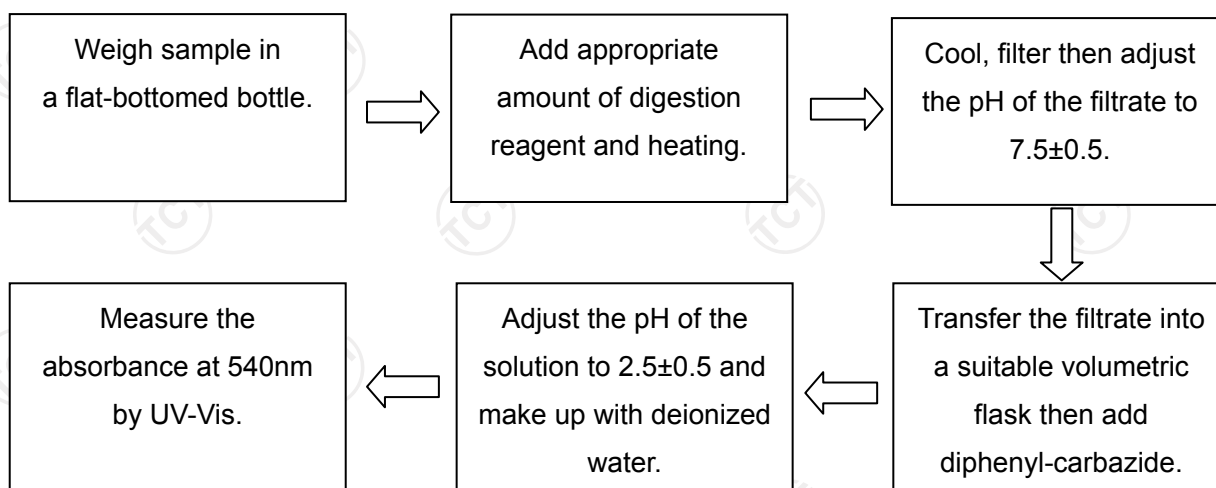
Date : Oct. 18, 2018

Page No.: 9 of 11

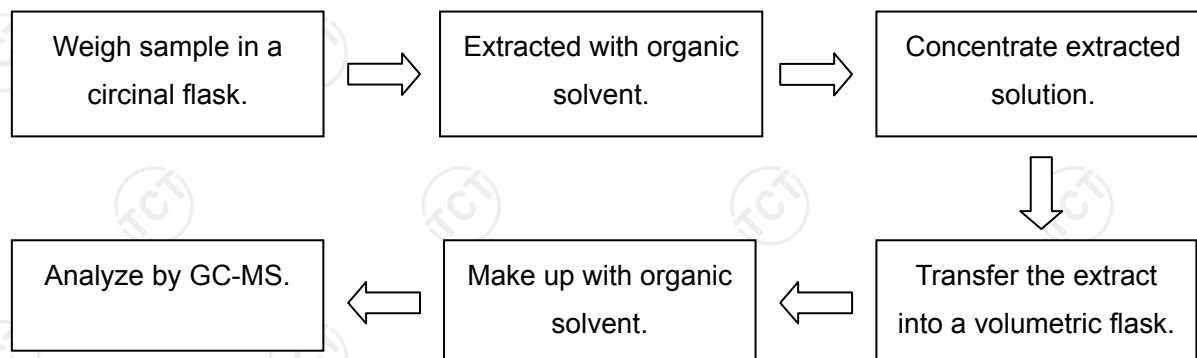
2.1 Test for Chromium(VI) Content(Metal)



2.2 Test for Chromium(VI) Content(Others)



3. Test for PBBs & PBDEs, DBP, BBP, DEHP, DIBP Content



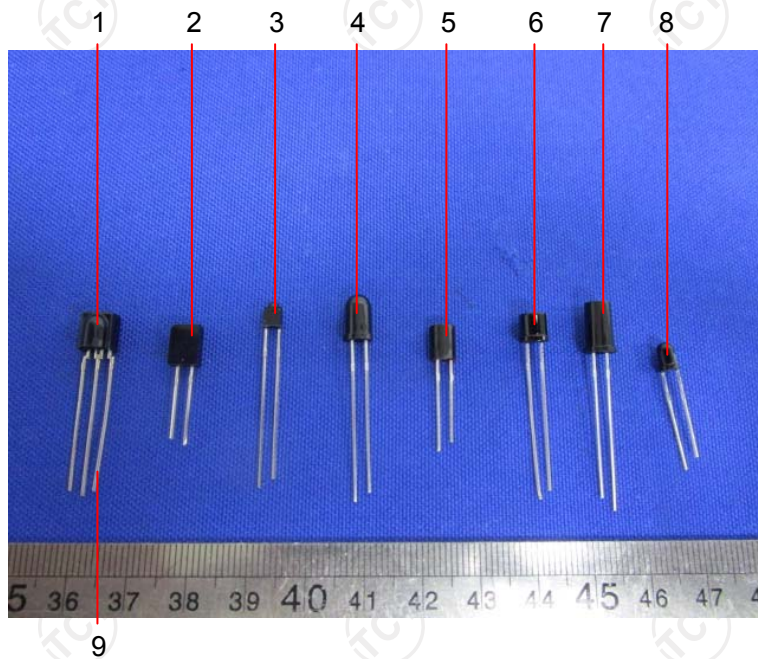
Test Report

Report No. : TCT180919C018

Date : Oct. 18, 2018

Page No.: 10 of 11

Photo(s) of the sample(s)

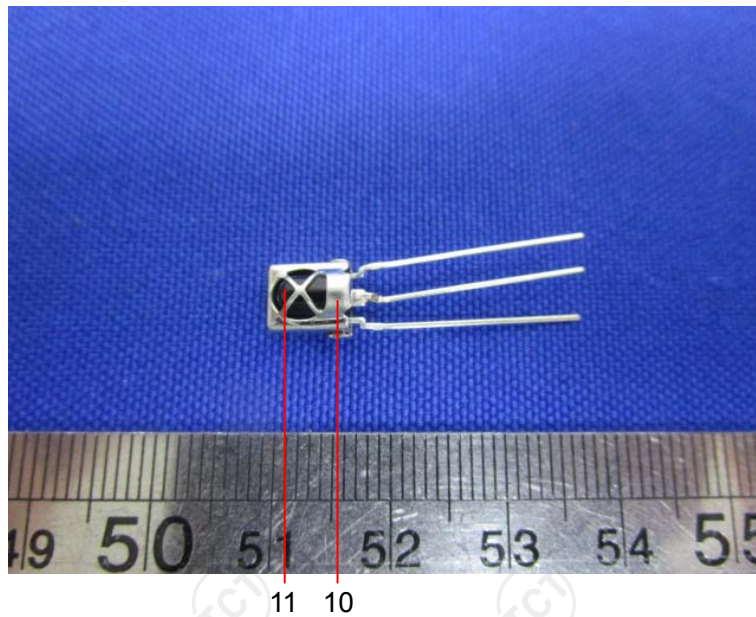


Test Report

Report No. : TCT180919C018

Date : Oct. 18, 2018

Page No.: 11 of 11



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

Remark: This report is considered invalidated without the Special Seal for Inspection of the TCT. This report shall not be altered, increased or deleted. The results shown in this test report refer only to the sample(s) tested. Without written approval of TCT, this test report shall not be copied except in full and published as advertisement.