

Test Report

Report No. : TCT201229C004

Date : Jan. 04, 2021

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Applicant: Shenzhen Shuguan Electronic Technology Co.,Ltd.
Address: 5th floor, building 2, hehe Science Park, dashuikeng community, Fucheng street, Longhua District, Shenzhen City,P.R.C

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

Sample Name: SIR/SGPD/SGPT/PD/PT/SL SERIES
Model No.: SIR/SGPD/SGPT/PD/PT/SL SERIES
Sample Received Date: 2020.12.29
Testing Period: 2020.12.29-2021.01.04
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

Sin Lu

Sin Lu

Signed for and on behalf of TCT

Noel Yin

Noel Yin

Technical Manager



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Test Results:

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

Tested Item(s)	Test Method/Instrument	MDL	Unit	Limit	Result
					1
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)	62321-4:2013+AMD1:2017 /ICP-OES	2	mg/kg	1000	N.D.
Hexavalent Chromium(Cr(VI))	IEC62321-7-2:2017/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.

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Specimen Description:

1. Transparent LED

- 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.
 - The test report is only used for customer research, teaching, internal quality control, product development, etc., only for internal reference only.

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

Test Items	Test Method	MDL	Unit	Results	Limit
				2	
Lead(Pb)	M1	2	mg/kg	N.D.	1000
Cadmium(Cd)	M1	2	mg/kg	N.D.	100
Mercury(Hg)	M2	2	mg/kg	N.D.	1000
Hexavalent Chromium(Cr(VI)) ▼	M3	0.10	ug/cm ²	N.D.	-
Sum of PBBs	-	-	mg/kg	N.D.	1000
Monobromobiphenyl	M4	5	mg/kg	N.D.	-
Dibromobiphenyl	M4	5	mg/kg	N.D.	-
Tribromobiphenyl	M4	5	mg/kg	N.D.	-
Tetrabromobiphenyl	M4	5	mg/kg	N.D.	-
Pentabromobiphenyl	M4	5	mg/kg	N.D.	-
Hexabromobiphenyl	M4	5	mg/kg	N.D.	-
Heptabromobiphenyl	M4	5	mg/kg	N.D.	-
Octabromobiphenyl	M4	5	mg/kg	N.D.	-
Nonabromobiphenyl	M4	5	mg/kg	N.D.	-
Decabromobiphenyl	M4	5	mg/kg	N.D.	-
Sum of PBDEs	-	-	mg/kg	N.D.	1000
Monobromodiphenyl ether	M4	5	mg/kg	N.D.	-
Dibromodiphenyl ether	M4	5	mg/kg	N.D.	-
Tribromodiphenyl ether	M4	5	mg/kg	N.D.	-
Tetrabromodiphenyl ether	M4	5	mg/kg	N.D.	-
Pentabromodiphenyl ether	M4	5	mg/kg	N.D.	-
Hexabromodiphenyl ether	M4	5	mg/kg	N.D.	-
Heptabromodiphenyl ether	M4	5	mg/kg	N.D.	-
Octabromodiphenyl ether	M4	5	mg/kg	N.D.	-
Nonabromodiphenyl ether	M4	5	mg/kg	N.D.	-
Decabromodiphenyl ether	M4	5	mg/kg	N.D.	-
Dibutyl Phthalate(DBP)	M5	30	mg/kg	N.D.	1000
Benzylbutyl Phthalate(BBP)	M5	30	mg/kg	N.D.	1000
Bis-(2-ethylhexyl) Phthalate (DEHP)	M5	30	mg/kg	N.D.	1000
Diisobutyl Phthalate (DIBP)	M5	30	mg/kg	N.D.	1000

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Specimen Description:

2. Silvery color metal pin

- Note:
- MDL = Method Detection Limit
 - N.D. = Not Detected(<MDL)
 - 1mg/kg = 1ppm = 0.0001%
 - M1: With reference to IEC 62321-5:2013, Analysis was performed by ICP-OES.
 - M2: With reference to IEC 62321-4:2013+AMD1:2017, Analysis was performed by ICP-OES.
 - M3: With reference to IEC 62321-7-1:2015, Analysis was performed by UV-Vis.
 - M4: With reference to IEC 62321-6:2015, Analysis was performed by GC-MS
 - M5: With reference to IEC 62321-8:2017, Analysis was performed by GC-MS
 - "-" = Not Regulated
 - Sample for Pb, Cd and Hg testing was completely dissolved
 - ▼ = a. When the Cr (VI) concentration is > the 0,13 $\mu\text{g}/\text{cm}^2$, 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 $\mu\text{g}/\text{cm}^2$), the sample is negative for Cr(VI) and considered a non-Cr(VI) based coating.
c. When the Cr (VI) concentration is \geq the 0,10 $\mu\text{g}/\text{cm}^2$ and \leq the 0,13 $\mu\text{g}/\text{cm}^2$, the result is considered to be inconclusive - Unavoidable coating variations may influence the determination.

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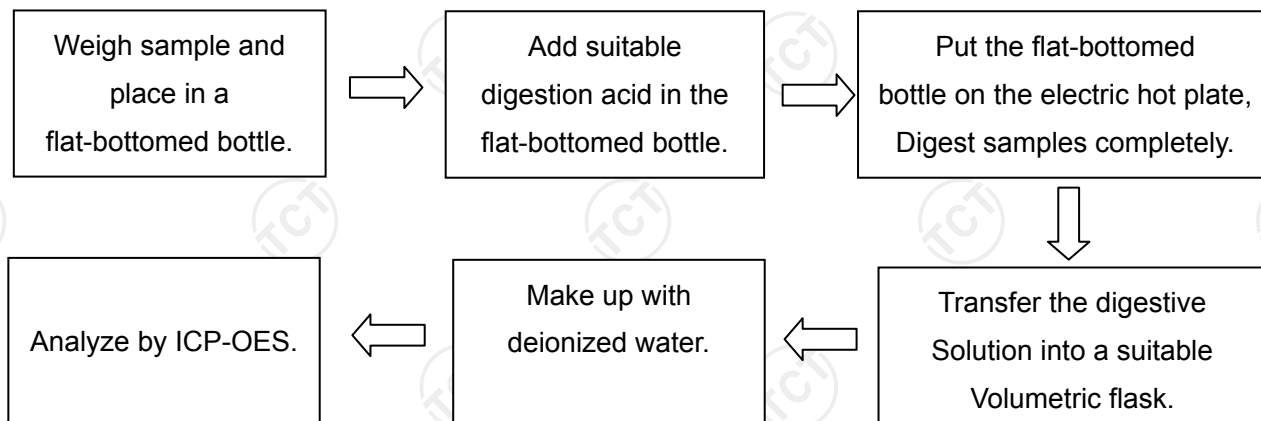
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FLOW CHART

1. Test for Pb, Hg, Cd Content



Sample Material	Digestion Acid
Glass	HNO ₃ /HF
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Any acid to total digestion.

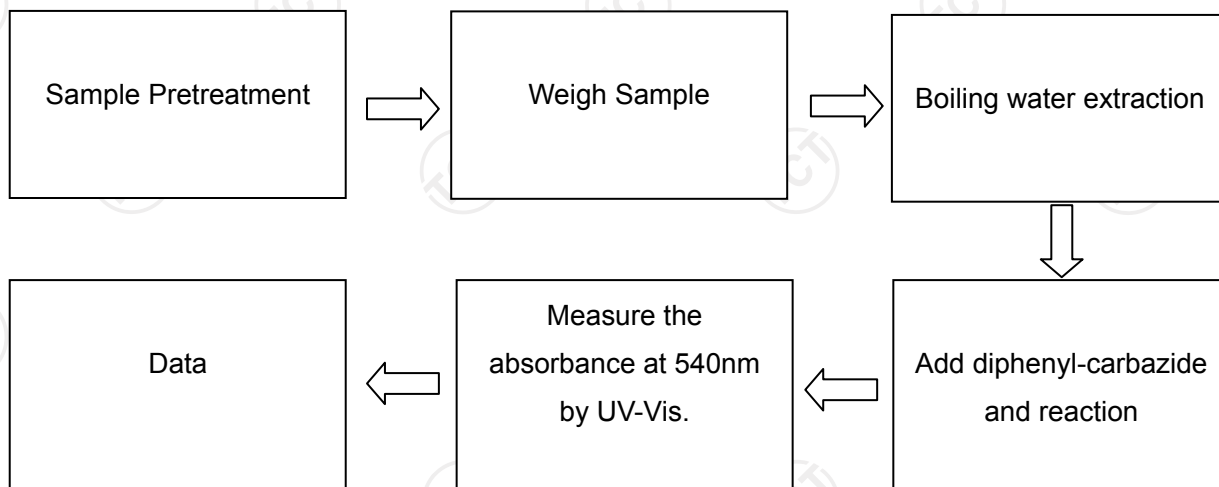
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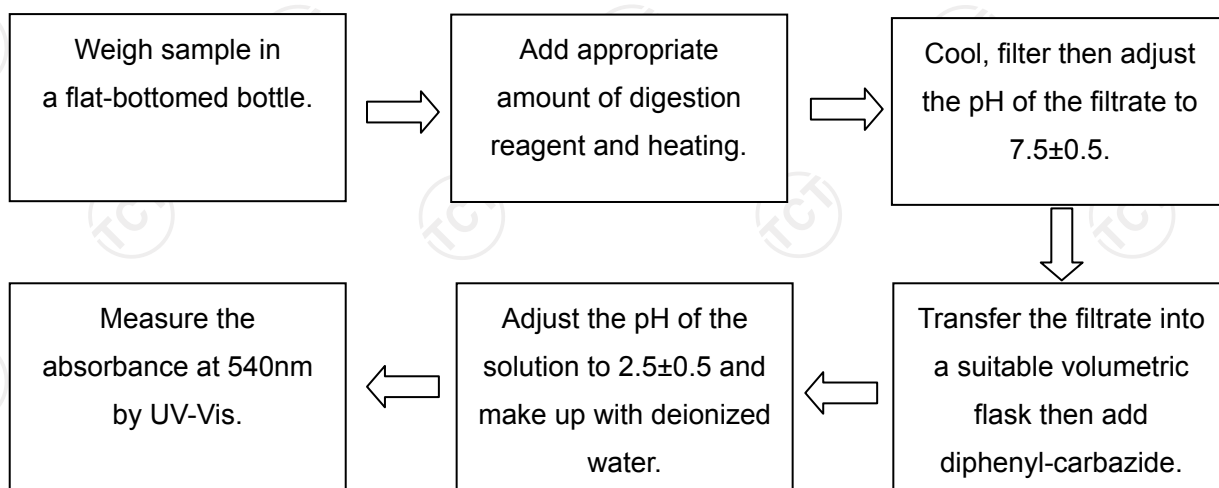
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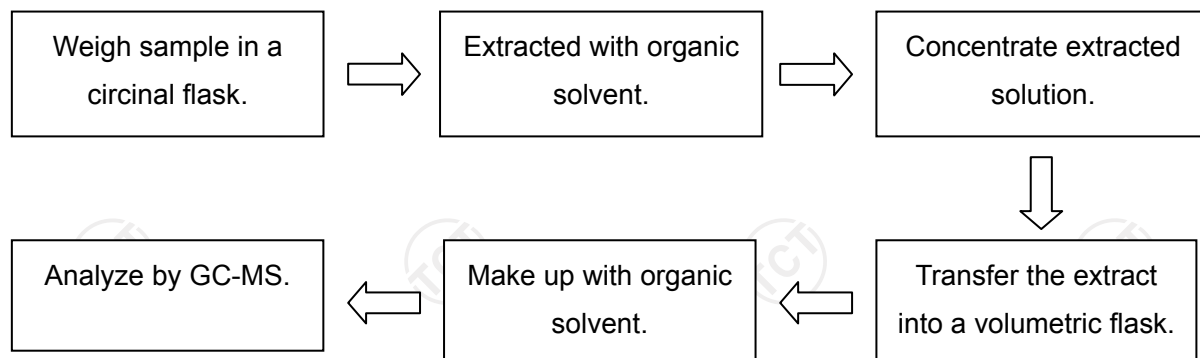
2.1 Test for Chromium(VI) Content(Metal)



2.2 Test for Chromium(VI) Content(Others)



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



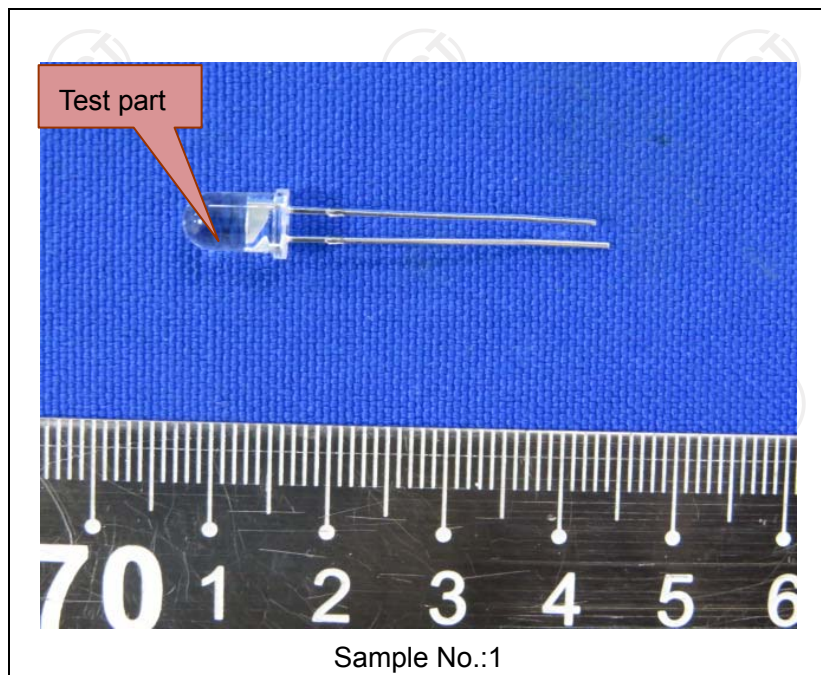
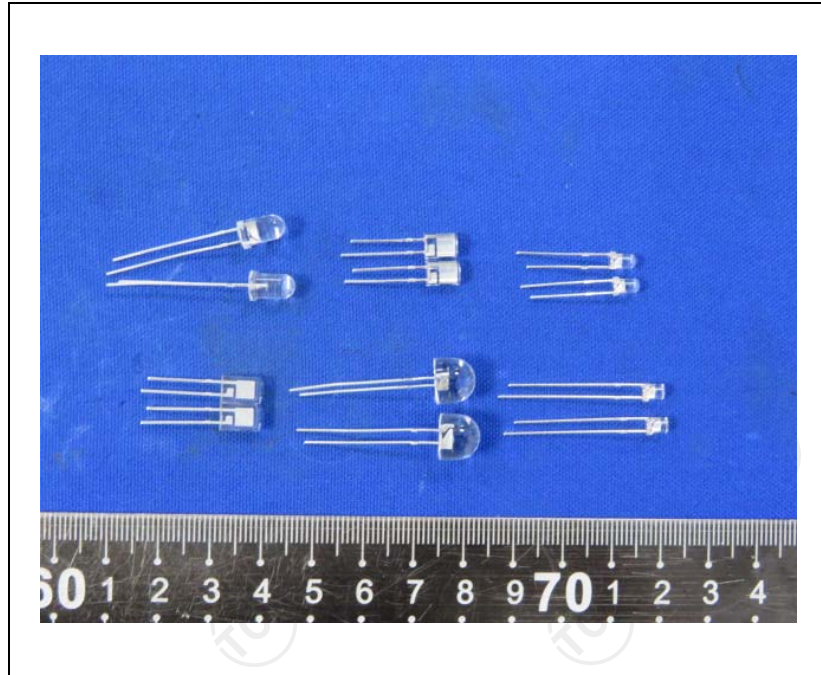
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Photo(s) of the sample(s)

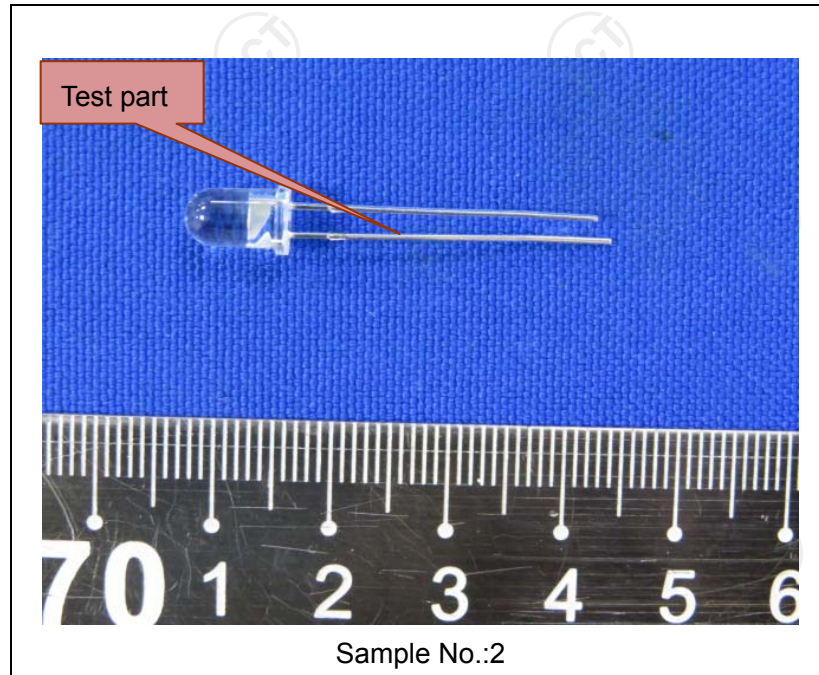


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***** End of Report *****

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