



Test Report

No.: ETR23303280

Date: 21-Mar-2023

Page: 1 of 7

SHINGTECH ELECTRONICS CO., LTD.

NO. 303, SEC. 2, NANSHAN RD., LUZHU DISTRICT, TAOYUAN CITY 338, TAIWAN (R. O. C.)

The following sample(s) was/were submitted and identified by the applicant as:

Sample Submitted By : SHINGTECH ELECTRONICS CO., LTD.
 Sample Name : PCB-OSP
 Style/Item No. : ROHS-OSP

=====
 Sample Receiving Date : 14-Mar-2023
 Testing Period : 14-Mar-2023 to 21-Mar-2023

Test Requested : (1) As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).
 (2) Please refer to next pages for the other item(s).

Test Results : Please refer to following pages.

Conclusion : (1) Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Troy Chang

Troy Chang / Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei



PIN CODE: D0291FAE

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Test Report

No.: ETR23303280

Date: 21-Mar-2023

Page: 2 of 7

SHINGTECH ELECTRONICS CO., LTD.

NO. 303, SEC. 2, NANSHAN RD., LUZHU DISTRICT, TAOYUAN CITY 338, TAIWAN (R. O. C.)

Test Part Description

No.1 : GREEN PCB

Test Result(s)

Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Cadmium (Cd)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	100
Lead (Pb)		mg/kg	2	2.42	1000
Mercury (Hg)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.	1000
Hexavalent Chromium Cr(VI)	With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.	mg/kg	8	n.d.	1000
Monobromobiphenyl	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	mg/kg	5	n.d.	-
Dibromobiphenyl		mg/kg	5	n.d.	-
Tribromobiphenyl		mg/kg	5	n.d.	-
Tetrabromobiphenyl		mg/kg	5	n.d.	-
Pentabromobiphenyl		mg/kg	5	n.d.	-
Hexabromobiphenyl		mg/kg	5	n.d.	-
Heptabromobiphenyl		mg/kg	5	n.d.	-
Octabromobiphenyl		mg/kg	5	n.d.	-
Nonabromobiphenyl		mg/kg	5	n.d.	-
Decabromobiphenyl		mg/kg	5	n.d.	-
Sum of PBBs		mg/kg	-	n.d.	1000
Monobromodiphenyl ether		mg/kg	5	n.d.	-
Dibromodiphenyl ether		mg/kg	5	n.d.	-
Tribromodiphenyl ether		mg/kg	5	n.d.	-
Tetrabromodiphenyl ether	mg/kg	5	n.d.	-	
Pentabromodiphenyl ether	mg/kg	5	n.d.	-	
Hexabromodiphenyl ether	mg/kg	5	n.d.	-	
Heptabromodiphenyl ether	mg/kg	5	n.d.	-	
Octabromodiphenyl ether	mg/kg	5	n.d.	-	
Nonabromodiphenyl ether	mg/kg	5	n.d.	-	
Decabromodiphenyl ether	mg/kg	5	n.d.	-	
Sum of PBDEs	mg/kg	-	n.d.	1000	

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Test Report

No.: ETR23303280

Date: 21-Mar-2023

Page: 3 of 7

SHINGTECH ELECTRONICS CO., LTD.

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Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Butyl benzyl phthalate (BBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Dibutyl phthalate (DBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Di-(2-ethylhexyl) phthalate (DEHP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Diisobutyl phthalate (DIBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Diisodecyl phthalate (DIDP) (CAS No.: 26761-40-0, 68515-49-1)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
Diisononyl phthalate (DINP) (CAS No.: 28553-12-0, 68515-48-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
Di-n-octyl phthalate (DNOP) (CAS No.: 117-84-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-

Note :

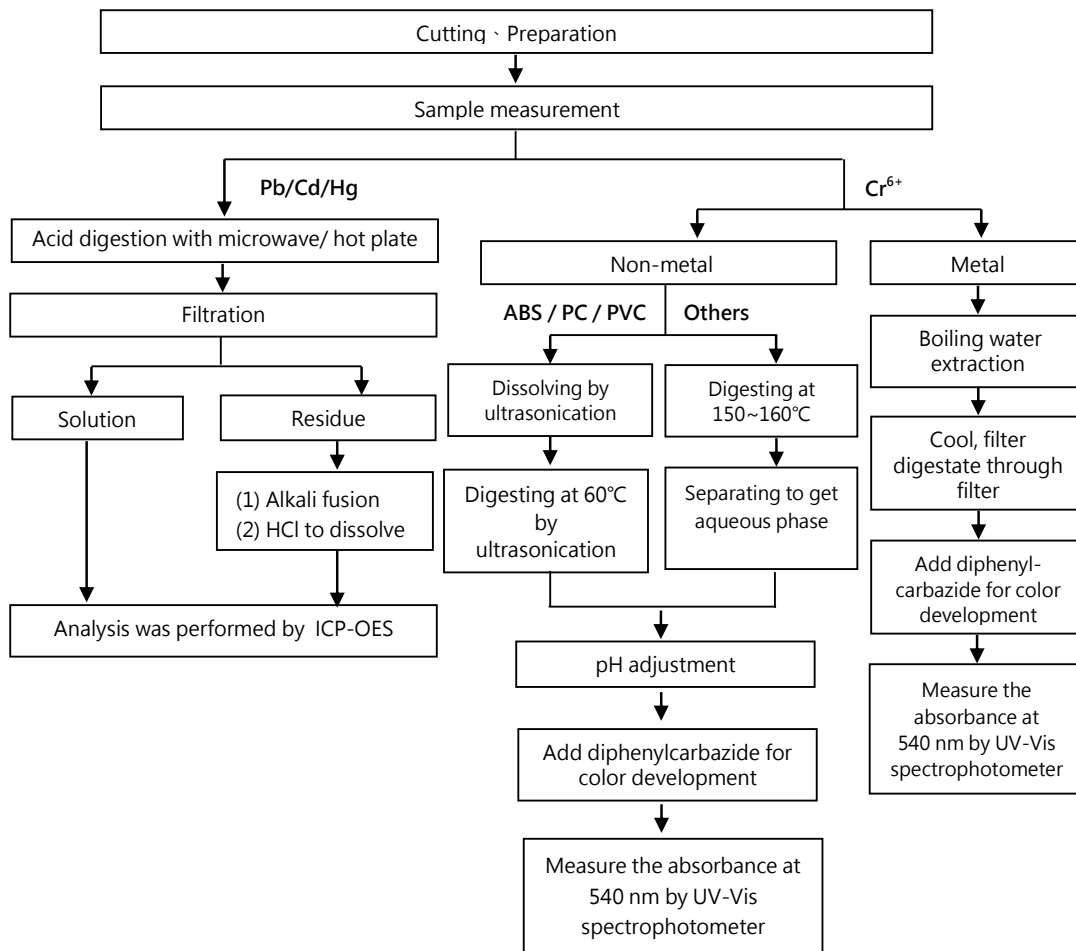
1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. "-" = Not Regulated
5. Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.

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Analytical flow chart of heavy metal

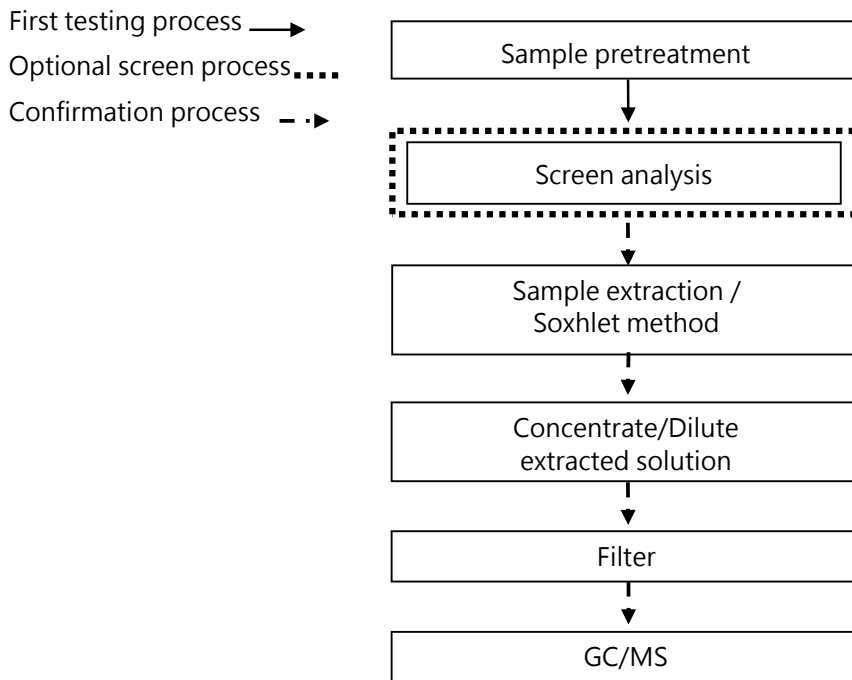
These samples were dissolved totally by pre-conditioning method according to below flow chart.

(Cr⁶⁺ test method excluded)



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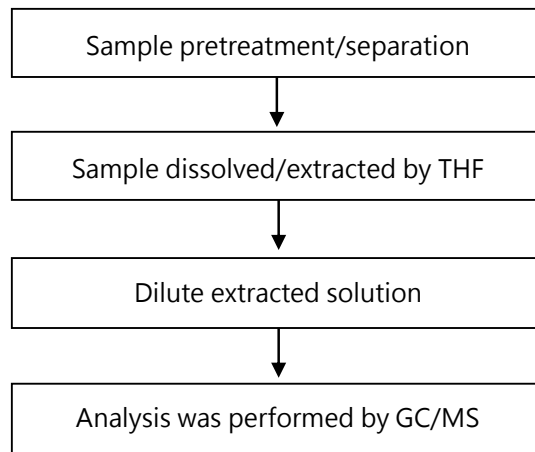
Analytical flow chart – PBBs / PBDEs



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Analytical flow chart - Phthalate

【Test method: IEC 62321-8】



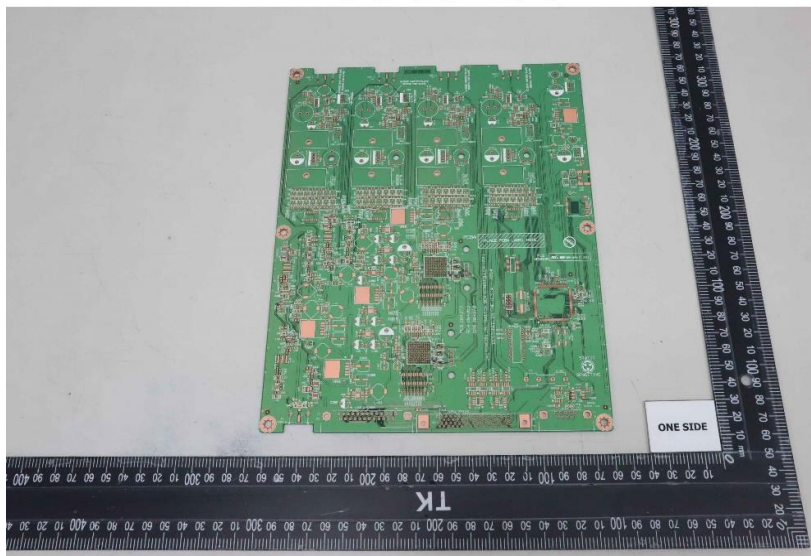
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SHINGTECH ELECTRONICS CO., LTD.

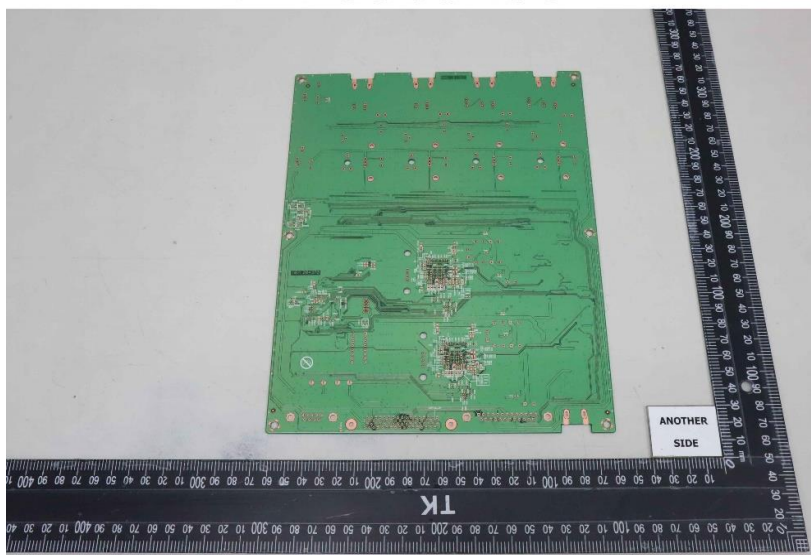
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* The tested sample / part is marked by an arrow if it's shown on the photo. *

ETR23303280



ETR23303280



** End of Report **

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