

Test Report

Report No.: 220713105GZU-074

Date: Aug 12, 2022

Applicant: AILUN ELECTRONIC TECHNOLOGY (H.K) LIMITED

Room 01, 21/F Prosper Commercial Building 9 Yin Chong
Street, Kowloon, H.K

Sample Description:

The following submitted sample(s) said to be:

Item Name : **Automotive Chip Resistor**
Model No. : NA
Date of Sample Received : Jul 15, 2022
Testing Period : Jul 15, 2022 to Aug 1, 2022

Tests conducted:

As requested by the applicant, refer to following page(s) for details.

Conclusion:

Tested Sample	Standard	Result
Tested components of submitted sample	Restriction of the use of certain hazardous substance in electrical and electronic equipment (RoHS Directive 2011/65/EU and (EU) 2015/863)	Pass

Intertek Testing Services Shenzhen Ltd. Guangzhou Branch:
Prepared by:

Leo Yao

Leo Yao
Project Engineer



Reviewed by:

Silva Zhou

Silva Zhou
Asst. Manager



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Tests conducted:

RoHS Chemical Test

(A) Test Result Summary:

Test Item	Result (mg/kg)
	(1)
Cadmium (Cd) Content	ND
Lead (Pb) Content	1350 [#]
Mercury (Hg) Content	ND
Chromium (VI)(Cr ⁶⁺) Content	ND
Sum of Polybrominated Biphenyls (PBBs)	ND
Monobromobiphenyl (MonoBB)	ND
Dibromobiphenyl (DiBB)	ND
Tribromobiphenyl (TriBB)	ND
Tetrabromobiphenyl (TetraBB)	ND
Pentabromobiphenyl (PentaBB)	ND
Hexabromobiphenyl (HexaBB)	ND
Heptabromobiphenyl (HeptaBB)	ND
Octabromobiphenyl (OctaBB)	ND
Nonabromobiphenyl (NonaBB)	ND
Decabromobiphenyl (DecaBB)	ND
Sum of Polybrominated Diphenyl Ethers (PBDEs)	ND
Monobromodiphenyl Ether (MonoBDE)	ND
Dibromodiphenyl Ether (DiBDE)	ND
Tribromodiphenyl Ether (TriBDE)	ND
Tetrabromodiphenyl Ether (TetraBDE)	ND
Pentabromodiphenyl Ether (PentaBDE)	ND
Hexabromodiphenyl Ether (HexaBDE)	ND
Heptabromodiphenyl Ether (HeptaBDE)	ND
Octabromodiphenyl Ether (OctaBDE)	ND
Nonabromodiphenyl Ether (NonaBDE)	ND
Decabromodiphenyl Ether (DecaBDE)	ND
Phthalates	
Bis(2-ethylhexyl) phthalate (DEHP)	ND
Butyl benzyl phthalate (BBP)	ND
Dibutyl phthalate (DBP)	ND
Diisobutyl phthalate (DIBP)	ND



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Tested sample:

(1) White ceramic with black material & white printing & silvery metal (SMD resistor) (35)

ND = Not detected

mg/kg = milligram per kilogram

(#) = As claimed by the declaration submitted from the applicant, the Lead content of the components is coming from the constituent of glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or a glass or ceramic matrix compound of the electrical and electronic component only. According to EU RoHS Directive (2011/65/EU) Annex III 7(c)-I, Lead in this component can be exempted.

(B) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr ⁶⁺)	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)
Phthalates (DEHP, BBP, DBP, DIBP)	0.1% (1000 mg/kg)

The above limits were quoted from 2011/65/EU and (EU) 2015/863 for homogeneous material.

(C) Test Method:

Test Item	Test Method	Detection Limit
Cadmium (Cd) Content	With reference to IEC 62321-5 Edition 1.0: 2013, by acid digestion and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321-5 Edition 1.0: 2013, by acid digestion and determined by ICP - OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321-4:2013+AMD1:2017 CSV, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI)(Cr ⁶⁺) Content	With reference to IEC 62321-7-2 Edition 1.0: 2017, Hexavalent chromium – Determination of hexavalent chromium (Cr (VI) in polymers and electronics by the colorimetric method	10 mg/kg
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs) Content	With reference to IEC 62321-6 Edition 1.0: 2015, by solvent extraction and determined by GC/MS and further HPLC confirmation when necessary	5 mg/kg
Phthalates (DEHP, BBP, DBP, DIBP) Content	With reference to IEC 62321-8 Edition 1.0: 2017, by solvent extraction and determined by GC/MS	100 mg/kg



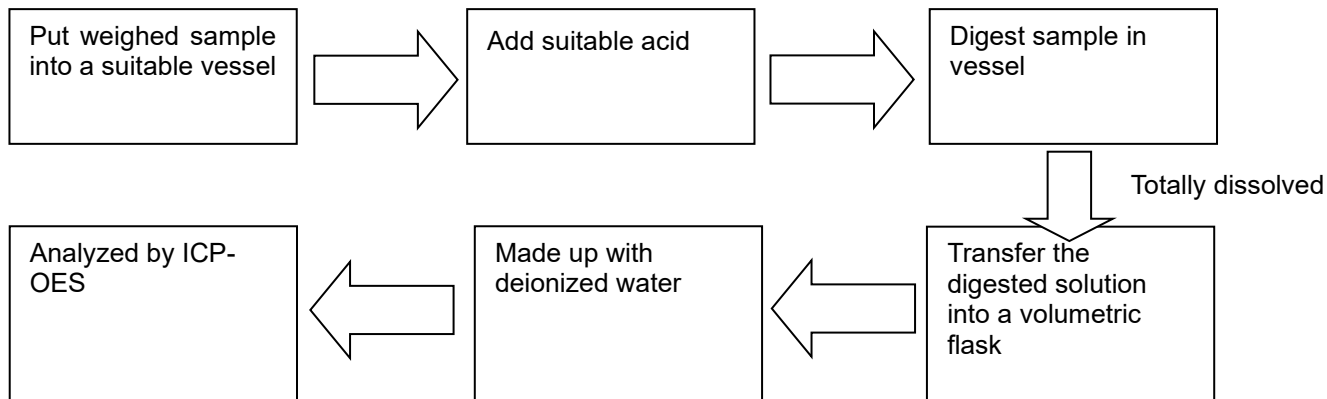
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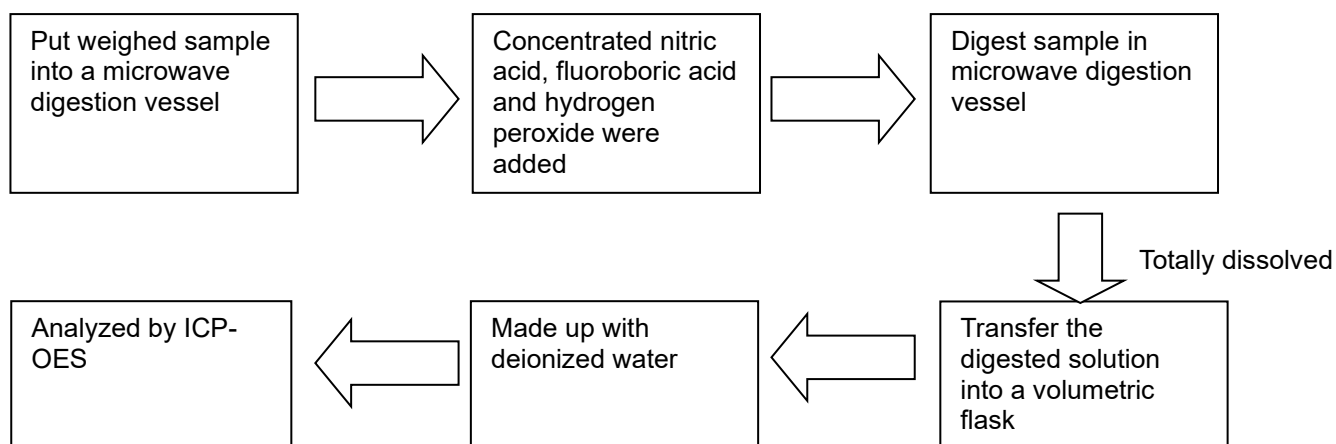
Date: Aug 12, 2022

(D) Measurement Flowchart:

1. Test for Cd/Pb Contents



2. Test for Hg Content



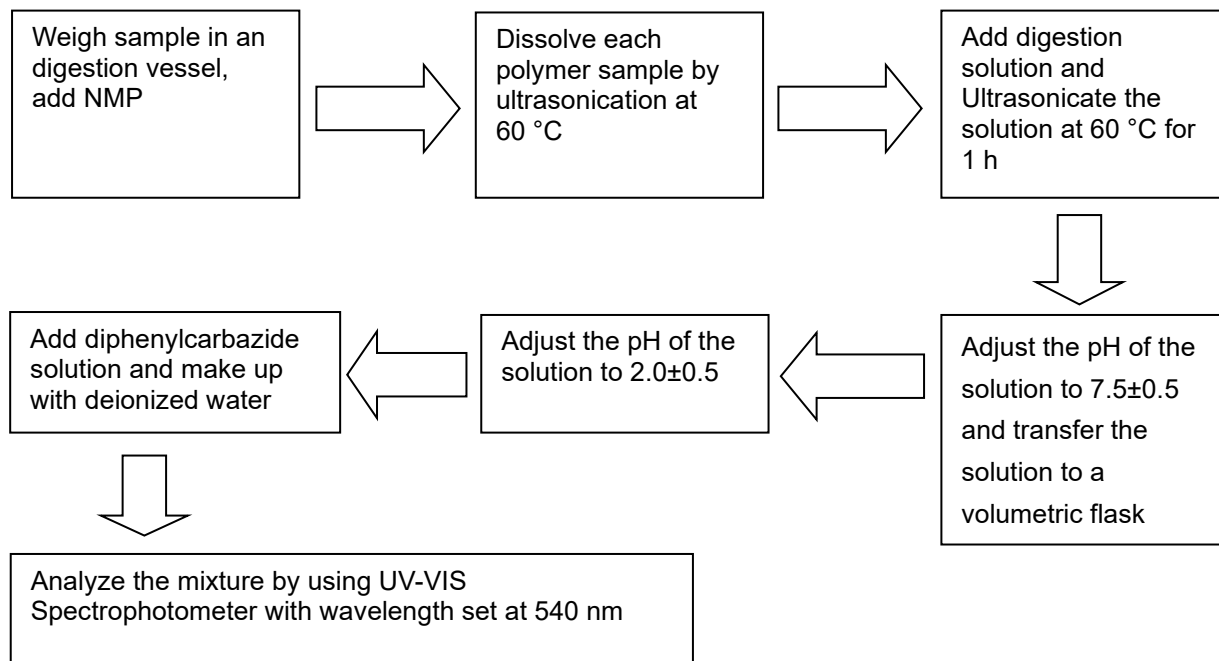
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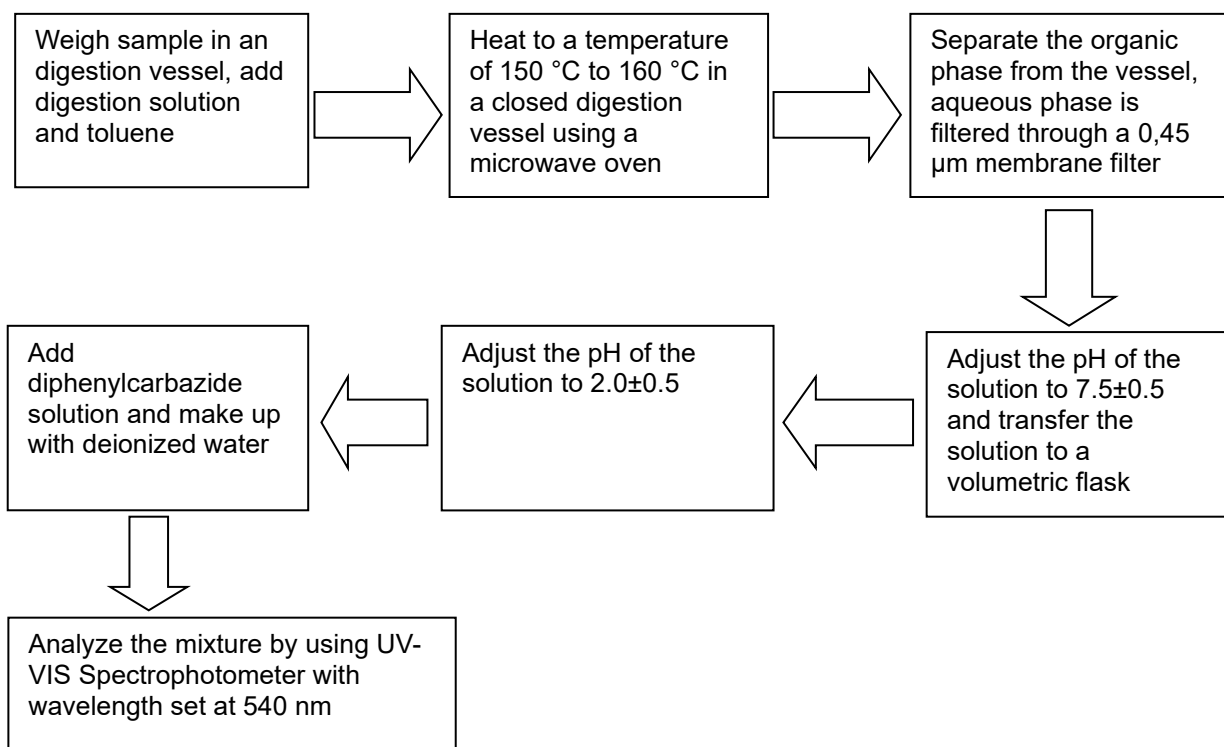
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3. Test for Chromium (VI) (Cr^{6+}) Content

Soluble polymers:



Insoluble/unknown polymers and electronics without Sb:

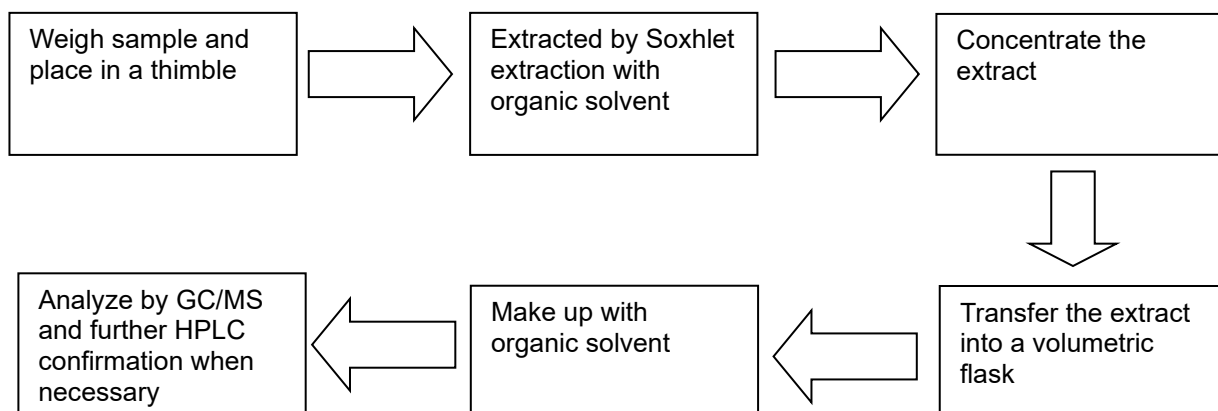


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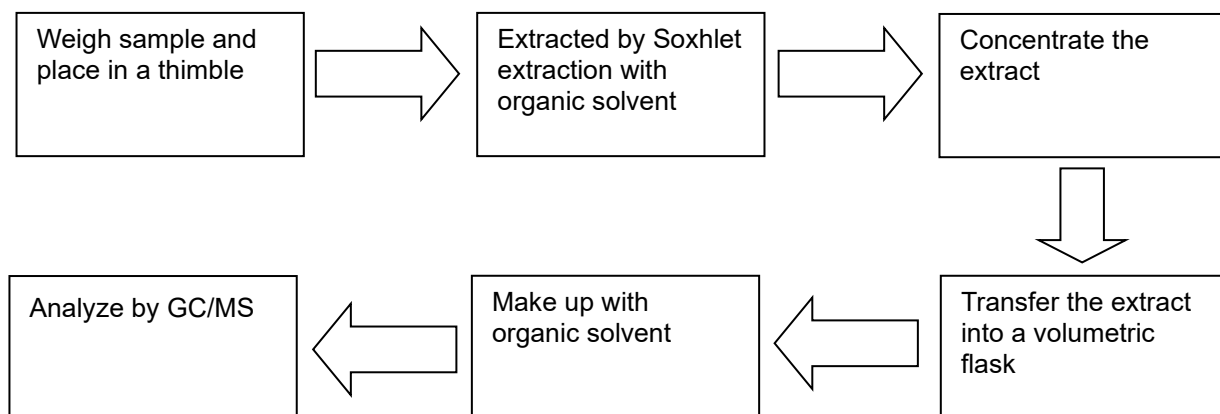
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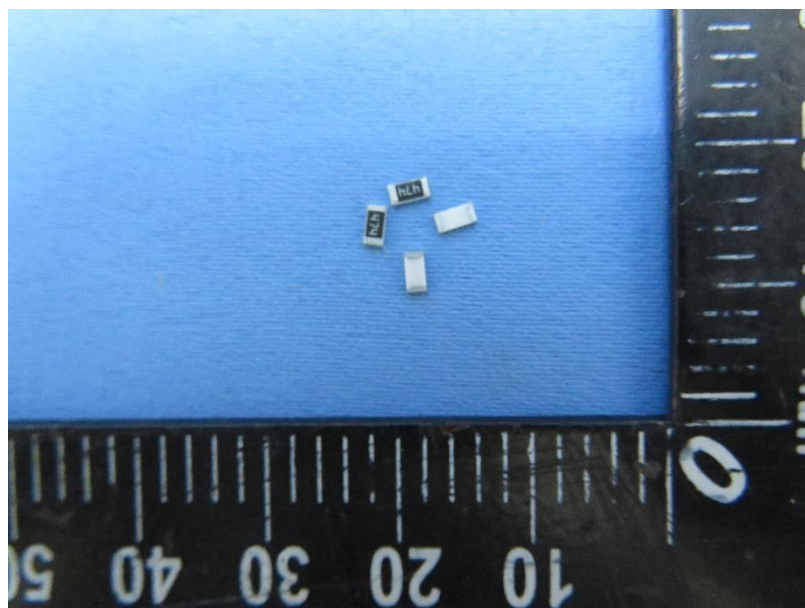
4. Test for PBBs/PBDEs Contents



5. Test for Phthalate Contents



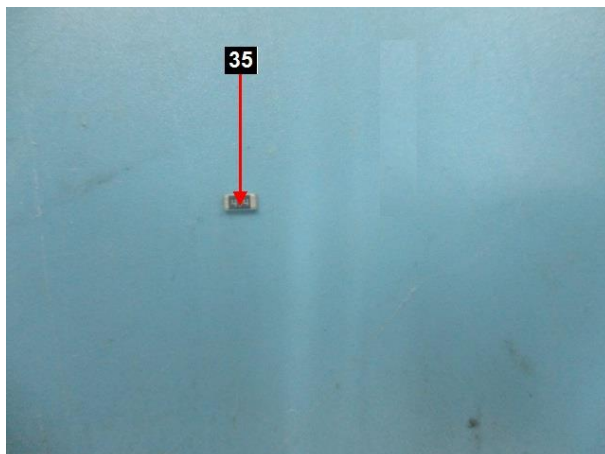
Sample photo



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End of report

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