

## Test Report

Report No.: 210719212GZU-018

Date: Aug 11, 2021

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 : **Metal glaze high voltage resistors**  
Model No. : NA  
Date of Sample Received : Jul 21, 2021  
Testing Period : Jul 21, 2021 to Aug 6, 2021

### 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  
Engineer



Reviewed by:

Michael Pang

Michael Pang  
Assistant Technical Supervisor



Tests conducted:

RoHS Chemical Test

(A) Test Result Summary:

| Test Item  | Result (mg/kg) |          |
|--|----------------|----------|
|  | (1)            | (2)      |
| Cadmium (Cd) Content   | ND             | ND       |
| Lead (Pb) Content  | 1316#          | ND       |
| Mercury (Hg) Content   | ND             | ND       |
| Chromium (VI)(Cr <sup>6+</sup> ) Content   | ND             | --       |
| Chromium (VI)(Cr <sup>6+</sup> ) Result (By Boiling Water Extraction on Metal) (µg/cm <sup>2</sup> ) | --             | Negative |
| Sum of Polybrominated Biphenyls (PBBs)   | ND             | ND       |
| Monobromobiphenyl (MonoBB)   | ND             | ND       |
| Dibromobiphenyl (DiBB)   | ND             | ND       |
| Tribromobiphenyl (TriBB)   | ND             | ND       |
| Tetrabromobiphenyl (TetraBB)   | ND             | ND       |
| Pentabromobiphenyl (PentaBB)   | ND             | ND       |
| Hexabromobiphenyl (HexaBB)   | ND             | ND       |
| Heptabromobiphenyl (HeptaBB)   | ND             | ND       |
| Octabromobiphenyl (OctaBB)   | ND             | ND       |
| Nonabromobiphenyl (NonaBB)   | ND             | ND       |
| Decabromobiphenyl (DecaBB)   | ND             | ND       |
| Sum of Polybrominated Diphenyl Ethers (PBDEs)  | ND             | ND       |
| Monobromodiphenyl Ether (MonoBDE)  | ND             | ND       |
| Dibromodiphenyl Ether (DiBDE)  | ND             | ND       |
| Tribromodiphenyl Ether (TriBDE)  | ND             | ND       |
| Tetrabromodiphenyl Ether (TetraBDE)  | ND             | ND       |
| Pentabromodiphenyl Ether (PentaBDE)  | ND             | ND       |
| Hexabromodiphenyl Ether (HexaBDE)  | ND             | ND       |
| Heptabromodiphenyl Ether (HeptaBDE)  | ND             | ND       |
| Octabromodiphenyl Ether (OctaBDE)  | ND             | ND       |
| Nonabromodiphenyl Ether (NonaBDE)  | ND             | ND       |
| Decabromodiphenyl Ether (DecaBDE)  | ND             | ND       |
| Phthalates   |                |          |
| Bis(2-ethylhexyl) phthalate (DEHP)   | ND             | ND       |
| Butyl benzyl phthalate (BBP)   | ND             | ND       |
| Dibutyl phthalate (DBP)  | ND             | ND       |
| Diisobutyl phthalate (DIBP)  | ND             | ND       |



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Tested samples:

- (1) Blue ceramic with yellow/red/gold color printing (18-1)
- (2) Silver color metal (18-2)

ND = Not detected

mg/kg = milligram per kilogram

Remark:

# = As claimed by the declaration submitted from the applicant, the Lead content of the components is coming from the constituent of ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or ceramic matrix compound of the electrical and electronic component only. According to the RoHS recast directive 2011/65/EU, Lead in this component can be exempted.

Negative = The Cr (VI) concentration is less than 0.10 µg/cm<sup>2</sup>.The sample is negative for Cr (VI).

(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 <sup>6+</sup> )      | 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.

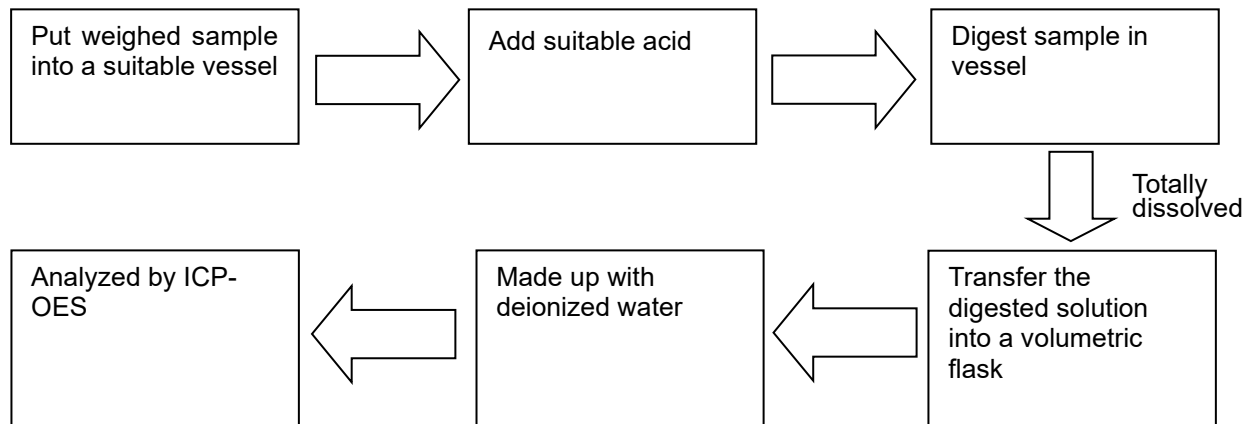
(C) Test Method:

| 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 Edition 1.1: 2017, by acid digestion and determined by ICP - OES   | 2 mg/kg                 |
| Chromium (VI)(Cr <sup>6+</sup> ) 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                |
| Chromium (VI)(Cr <sup>6+</sup> ) Content                                | With reference to IEC 62321-7-1 edition 1.0:2015, by boiling water extraction and determined by UV-VIS spectrophotometer   | 0.10 µg/cm <sup>2</sup> |
| Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs) | 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               |

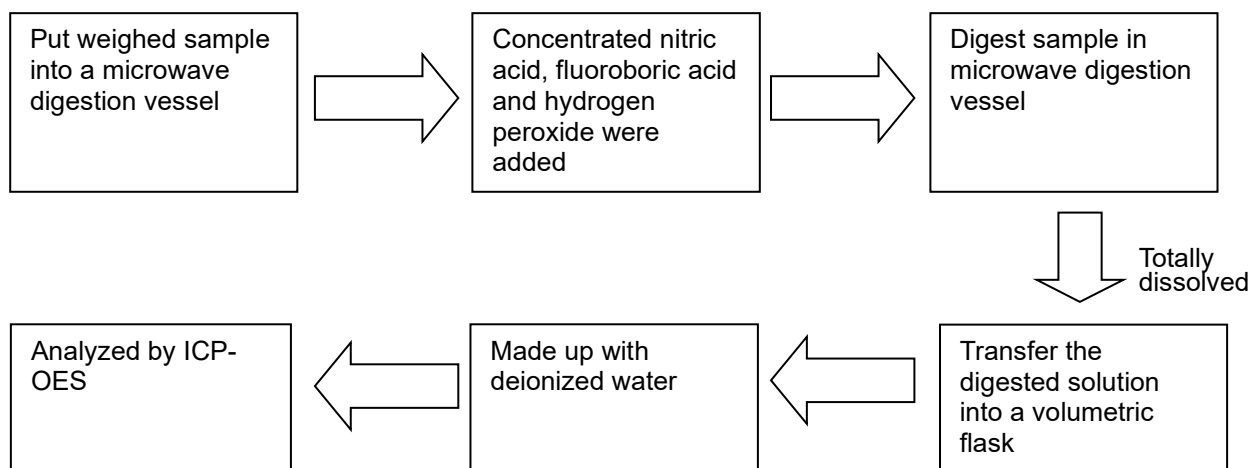


(D) Measurement Flowchart:

1. Test for Cd/Pb Contents

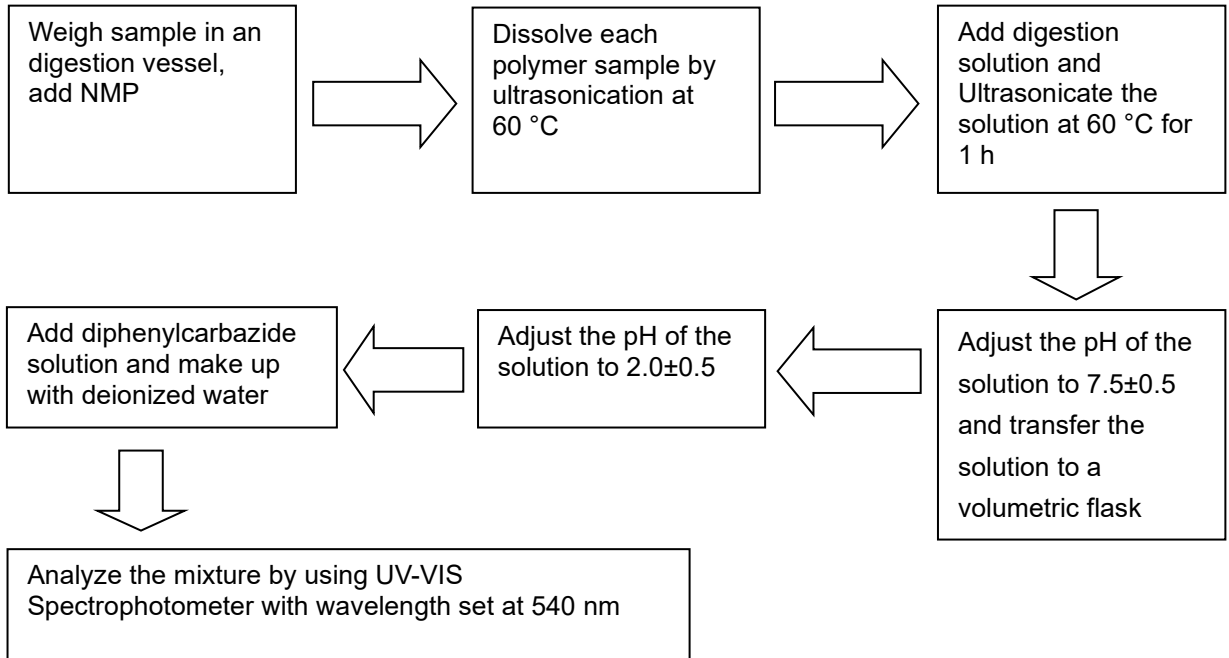


2. Test for Hg Content

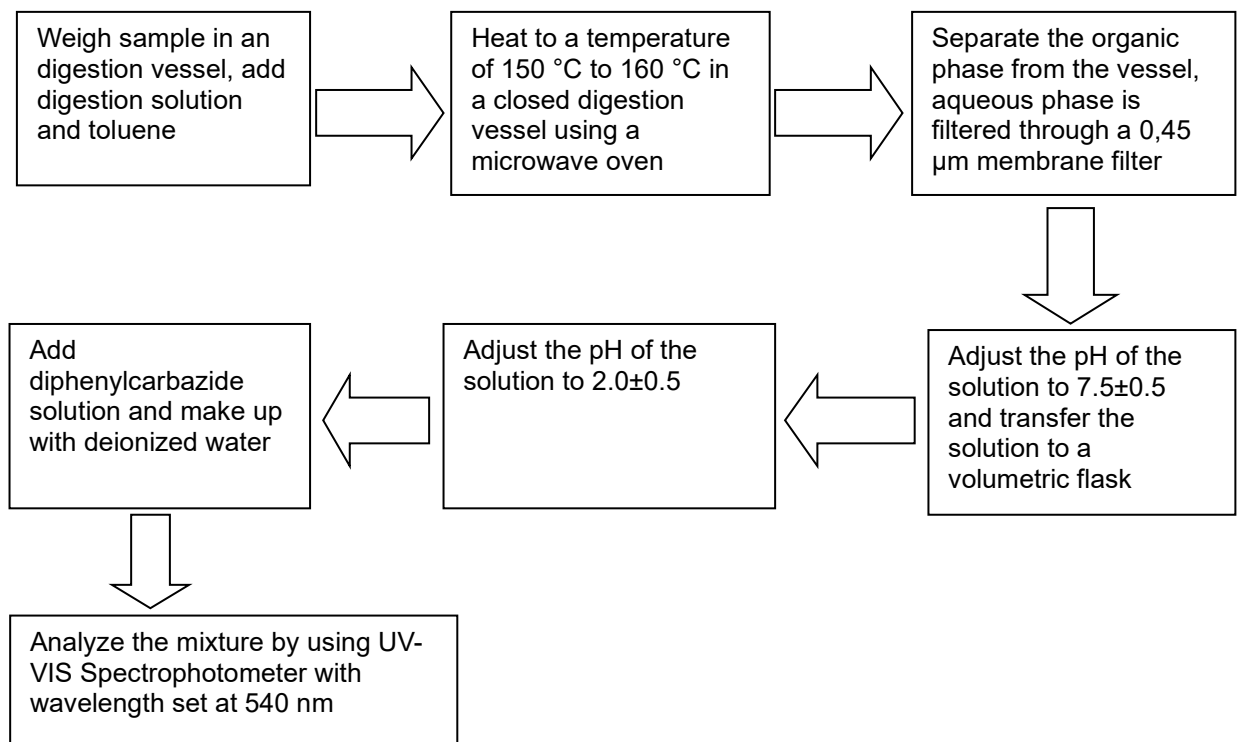


3. Test for Chromium (VI) ( $\text{Cr}^{6+}$ ) Content

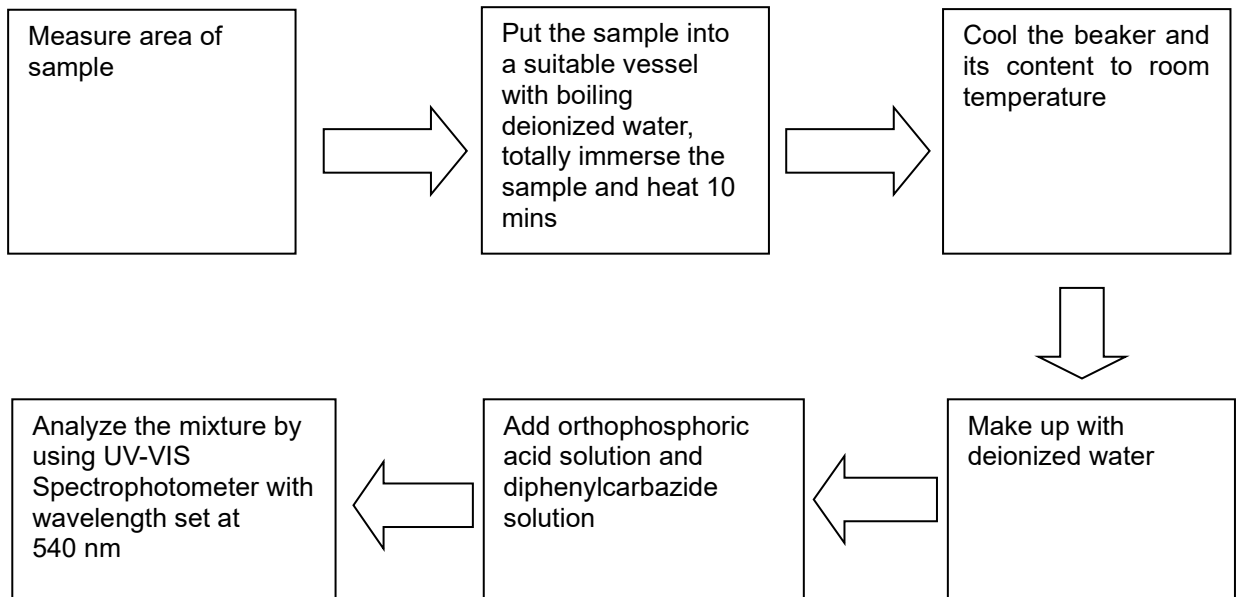
Soluble polymers:



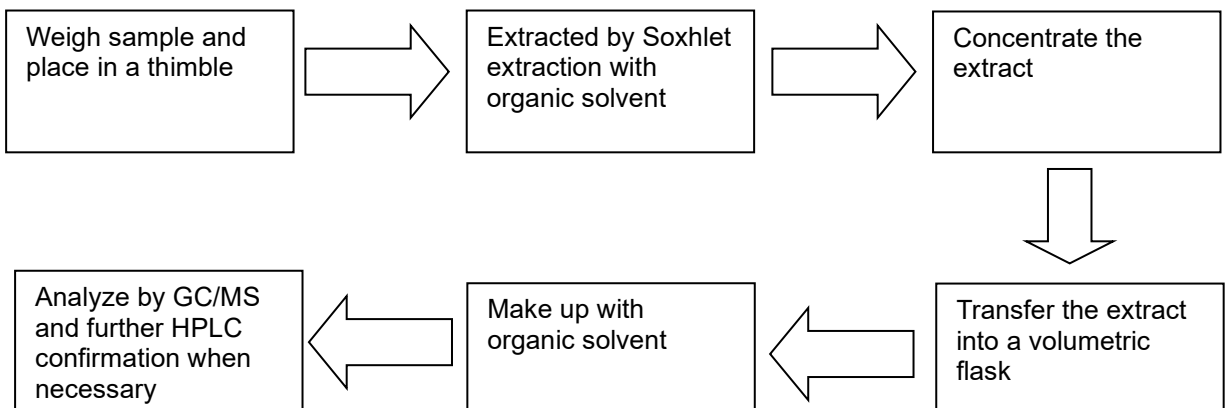
Insoluble/unknown polymers and electronics without Sb:



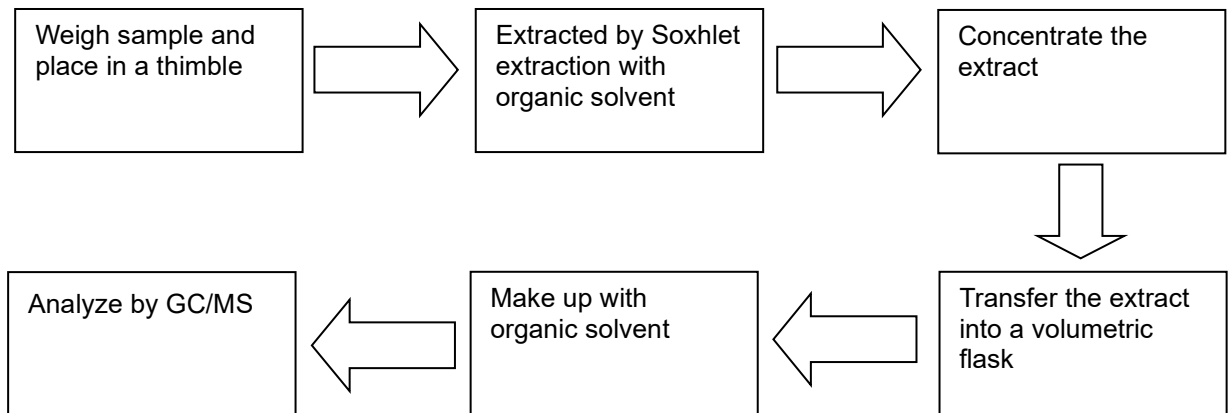
4. Test for Chromium (VI) (Cr<sup>6+</sup>) Content (Boiling Water Extraction)



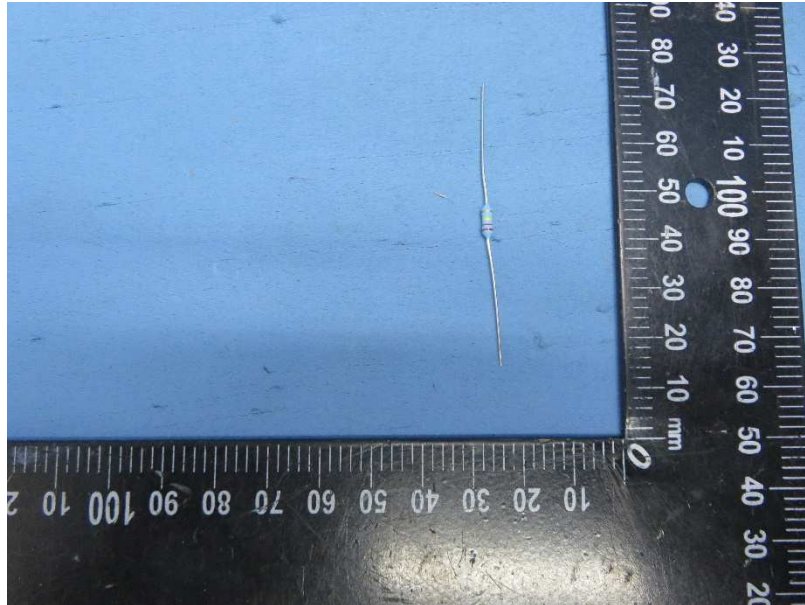
5. Test for PBBs/PBDEs Contents



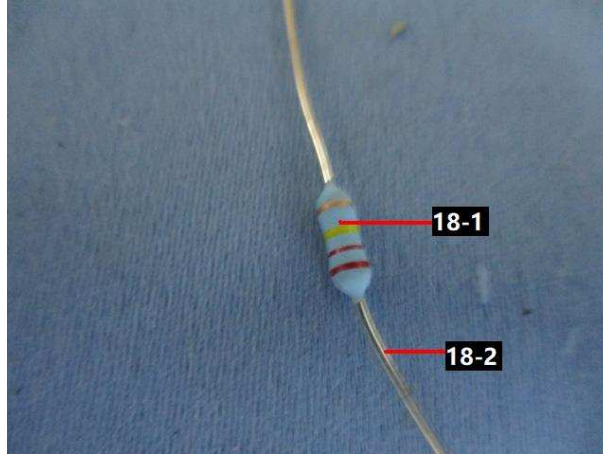
6. Test for Phthalate Contents



## Sample photo







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End of report

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