

Test Report

Report No.: 190823021GZU-005

Date: Sep 19, 2019

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 : **Leaded Multilayer Ceramic Capacitor (Blue)**
Model No. : NA
Date of Sample Received : Aug 26, 2019
Testing Period : Aug 26, 2019 to Sep 03, 2019

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 |

Authorized by:

For Intertek Testing Services Shenzhen Ltd. Guangzhou Branch:



Martin He
Senior Project Engineer



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Tests conducted:

RoHS Chemical Test

(A) Test Result Summary:

| Testing Item | Result | |
|---|--------|------------------|
| | (1) | (2) |
| Cadmium (Cd) Content (mg/kg) | ND | ND |
| Lead (Pb) Content (mg/kg) | ND | ND |
| Mercury (Hg) Content (mg/kg) | ND | ND |
| Chromium (VI)(Cr ⁶⁺) Content (mg/kg) | ND | -- |
| Chromium (VI)(Cr ⁶⁺) Result (By Boiling Water Extraction on Metal)($\mu\text{g}/\text{cm}^2$) | -- | Negative (<0.10) |
| Polybrominated Biphenyls (PBBs)(mg/kg) | | |
| 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 |
| Polybrominated Diphenyl Ethers (PBDEs) (mg/kg) | | |
| 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(mg/kg) | | |
| Bis(2-ethylhexyl)phthalate(DEHP) | ND | ND |
| Butyl benzyl phthalate(BBP) | ND | ND |
| Dibutyl phthalate(DBP) | ND | ND |
| Diisobutyl phthalate(DIBP) | ND | ND |

Tested samples:

- (1) Blue body
- (2) Silver color metal



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ND = Not detected

mg/kg= milligram per kilogram

Negative = The Cr (VI) concentration is less than 0.10 µg/cm².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 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.

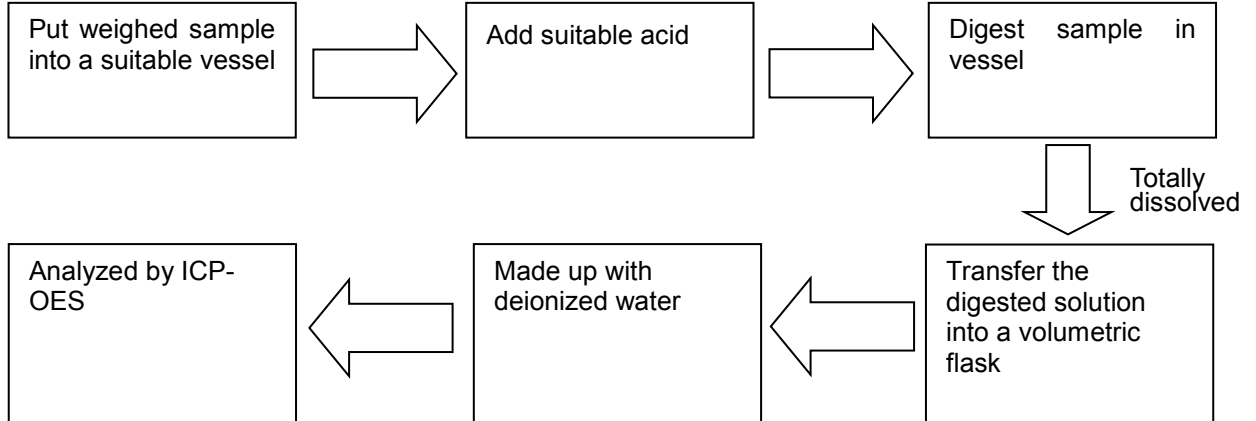
(C) Test Method:

| Testing Item | Testing Method | Reporting 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 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 |
| Chromium (VI)(Cr ⁶⁺) 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 ² |
| 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 | 100mg/kg |

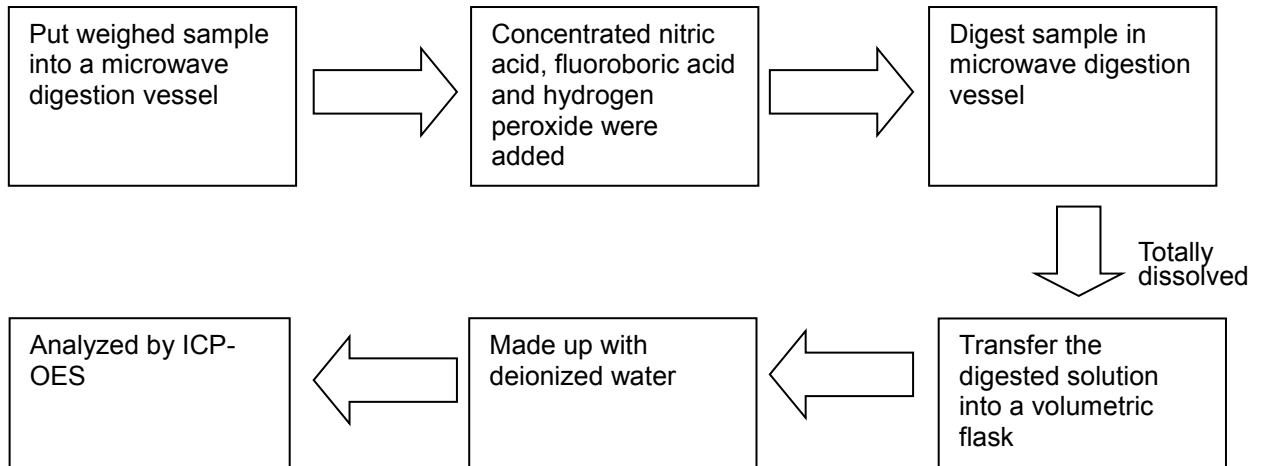


(D) Measurement Flowchart:

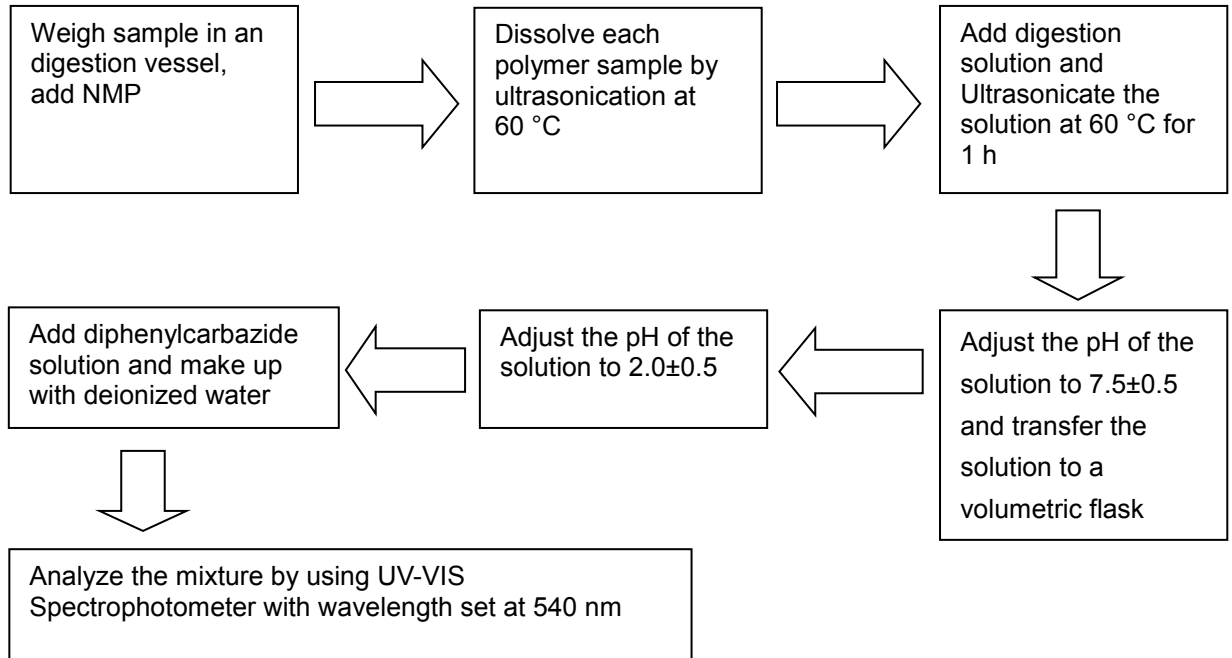
1. Test for Cd/Pb Contents



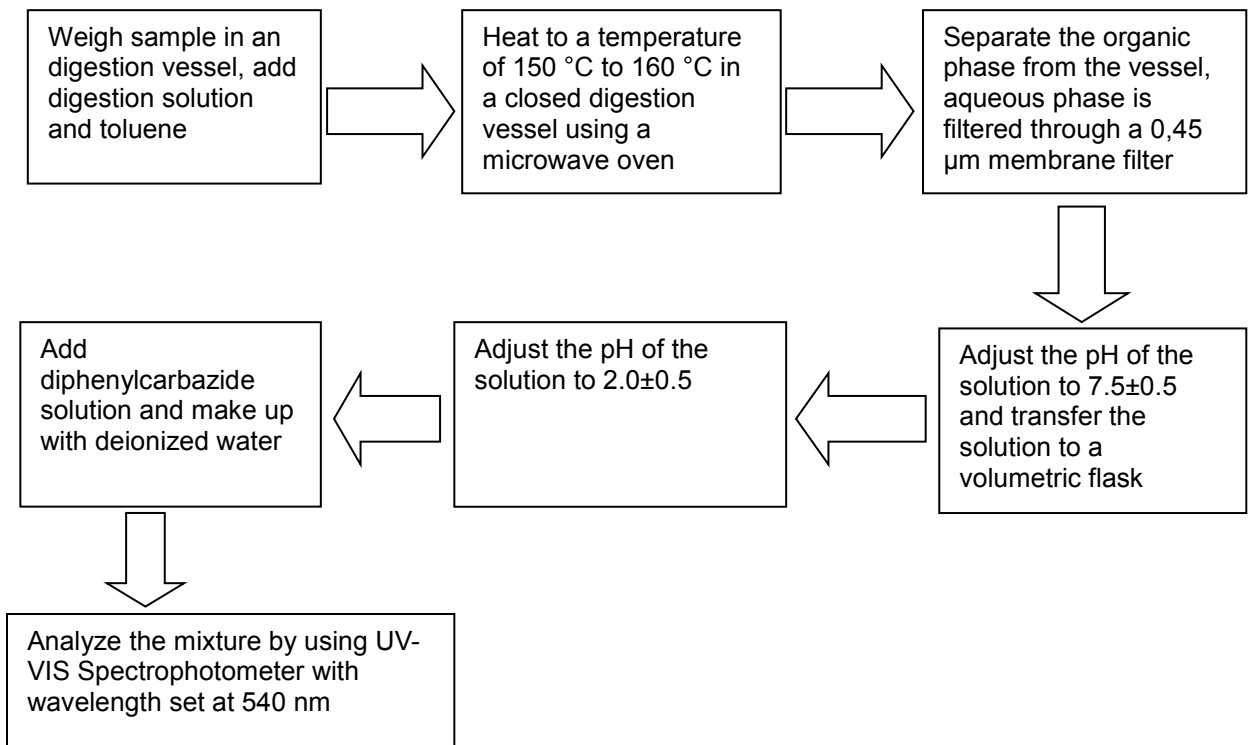
2. Test for Hg Content



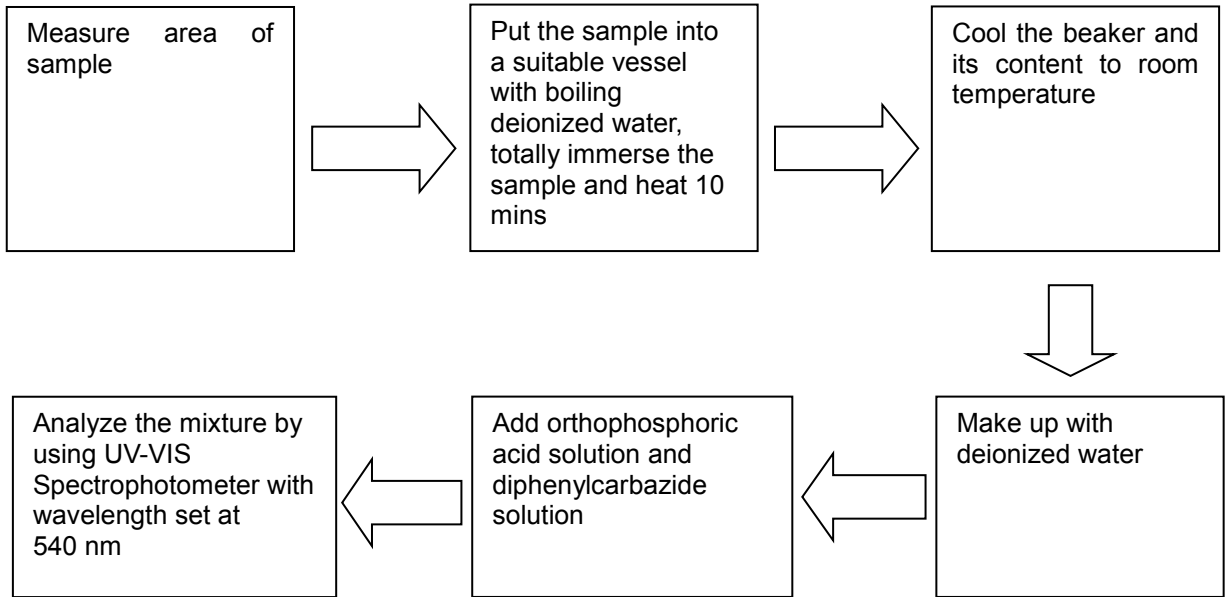
3. Test for Chromium (VI) (Cr⁶⁺) Content Soluble polymers:



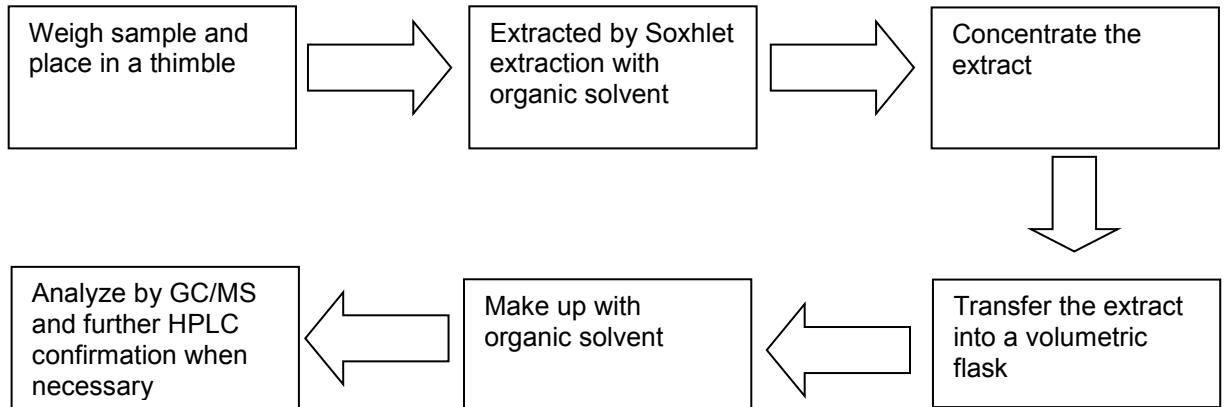
Insoluble/unknown polymers and electronics without Sb:



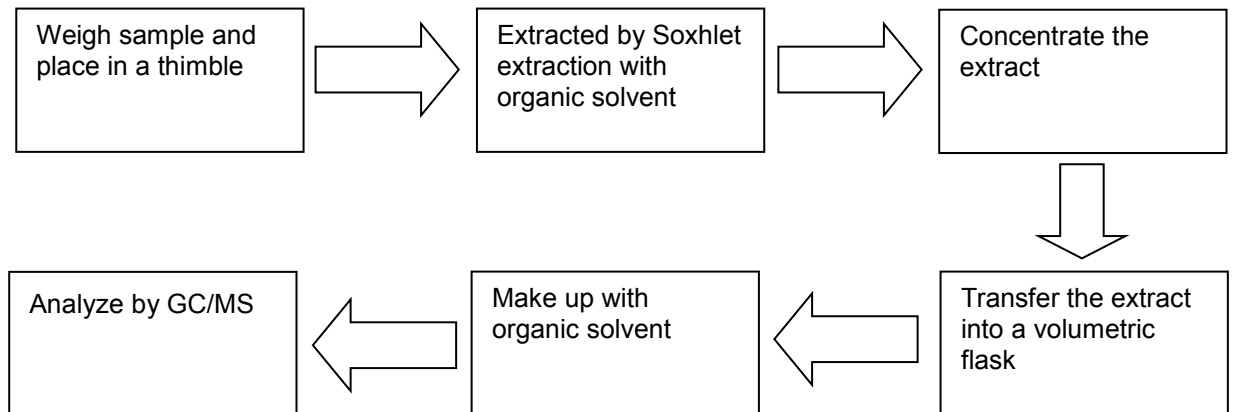
4. Test for Chromium (VI) (Cr^{6+}) Content (Boiling Water Extraction)



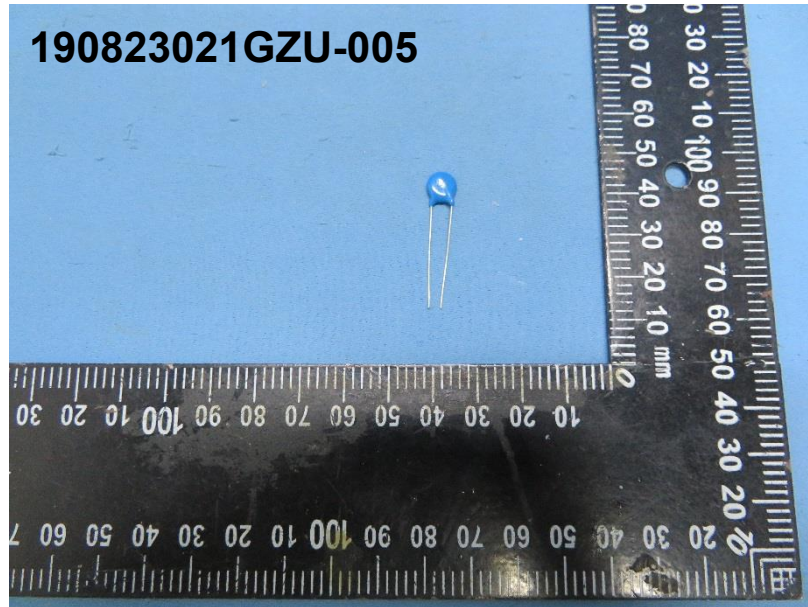
5. Test for PBBs/PBDEs Contents

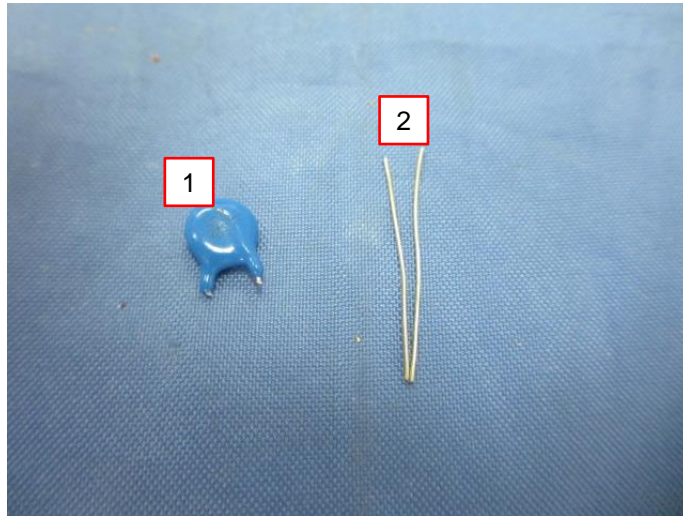


6. Test for Phthalate Contents



Sample photo





End of report

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