

**Test Report**

Report No.: 200826041GZU-017

Date: Sep 19, 2020

Applicant: AILUN ELECTRONIC TECHNOLOGY (H.K) LIMITED

Flat/RM 01 21/F Prosper Commercial Building 9 Yin  
Chong Street

Sample Description:

The following submitted sample(s) said to be:

Item Name : **Power metal film chip resistors**  
Model No. : NA  
Date of Sample Received : Aug 26, 2020  
Testing Period : Aug 26, 2020 to Sep 11, 2020

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:



Martin He  
Senior Project Engineer



Reviewed by:



Michael Pang  
Assistant Technical Supervisor



**Test Report**

Report No.: 200826041GZU-017

Date: Sep 19, 2020

Tests conducted:

RoHS Chemical Test

(A) Test Result Summary:

Test Item	Result (mg/kg)	
	(1)	(2)
Cadmium (Cd) Content	ND	ND
Lead (Pb) Content	ND	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)( $\mu\text{g}/\text{cm}^2$ )	-	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

Tested samples:

- (1) Black body (17-1)
- (2) Silver color metal (17-2)



**Test Report**

Report No.: 200826041GZU-017

Date: Sep 19, 2020

ND = Not detected

mg/kg = milligram per kilogram

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.

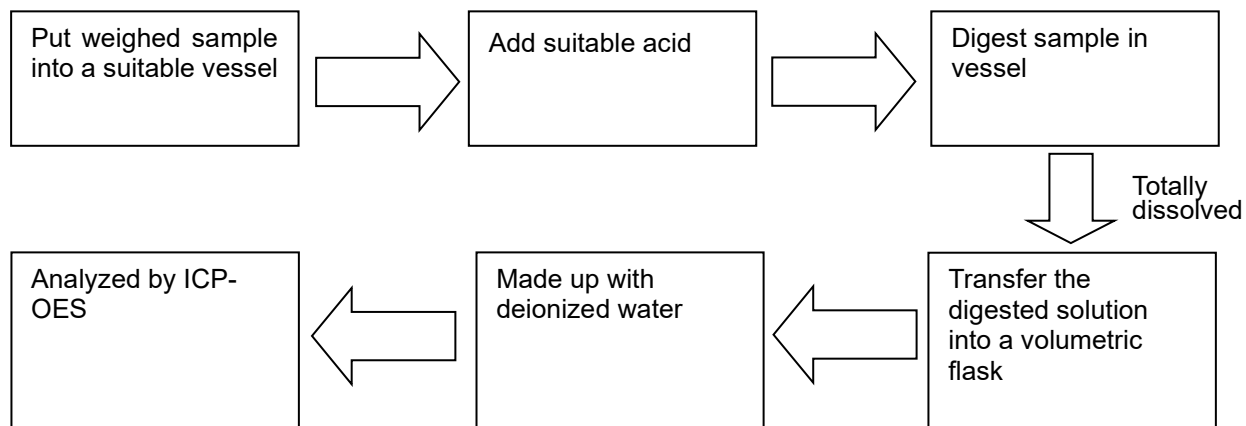
(C) Test Method:

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 62321-7-1 Edition 1.0: 2015, by boiling water extraction and determined by UV-VIS spectrophotometer	0.10 µg/cm <sup>2</sup>
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
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

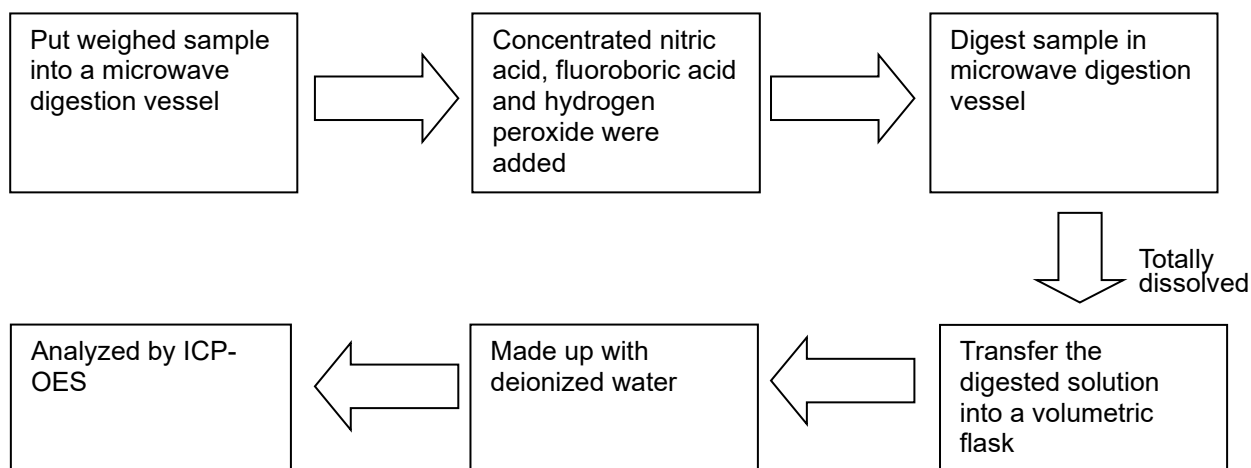


(D) Measurement Flowchart:

1. Test for Cd/Pb Contents

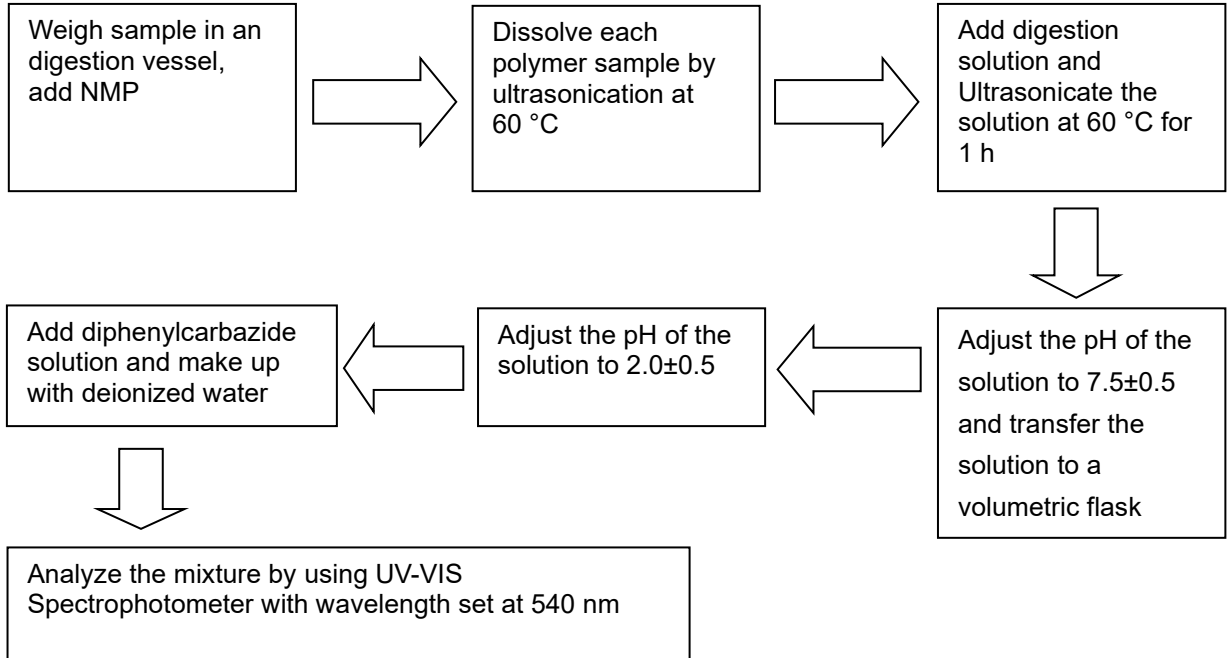


2. Test for Hg Content

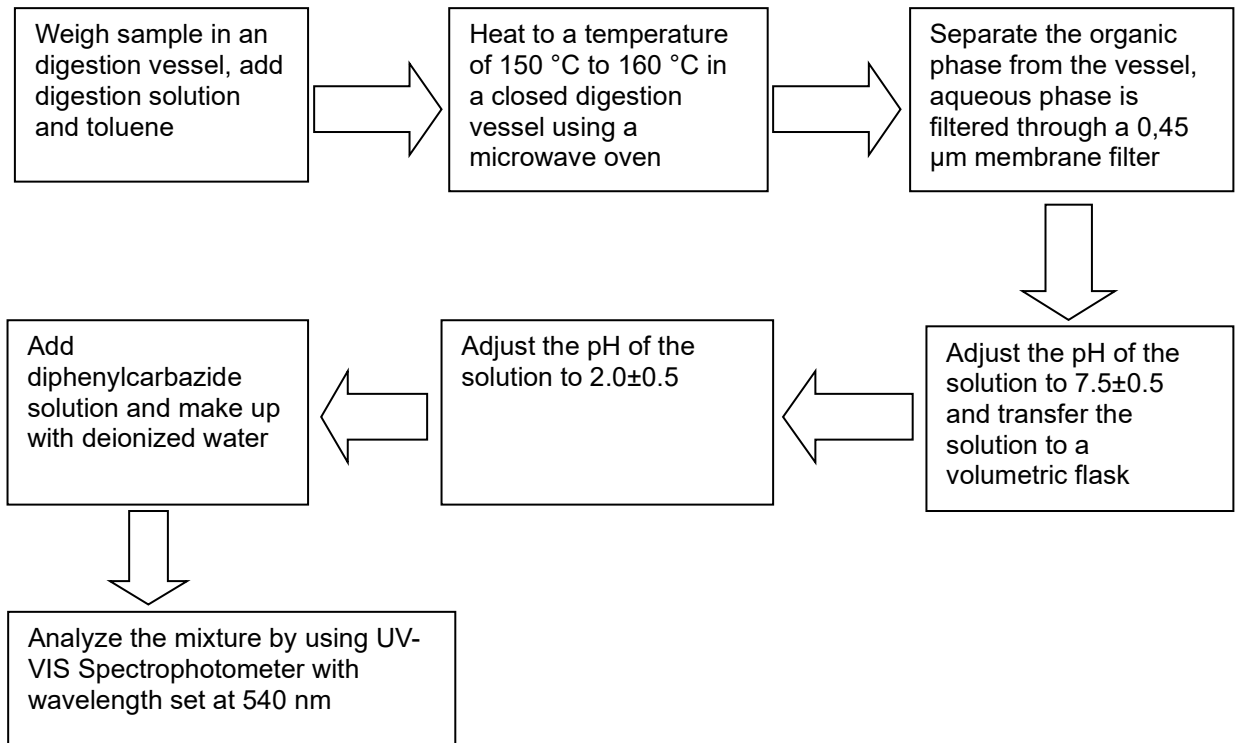


3. Test for Chromium (VI) (Cr<sup>6+</sup>) Content

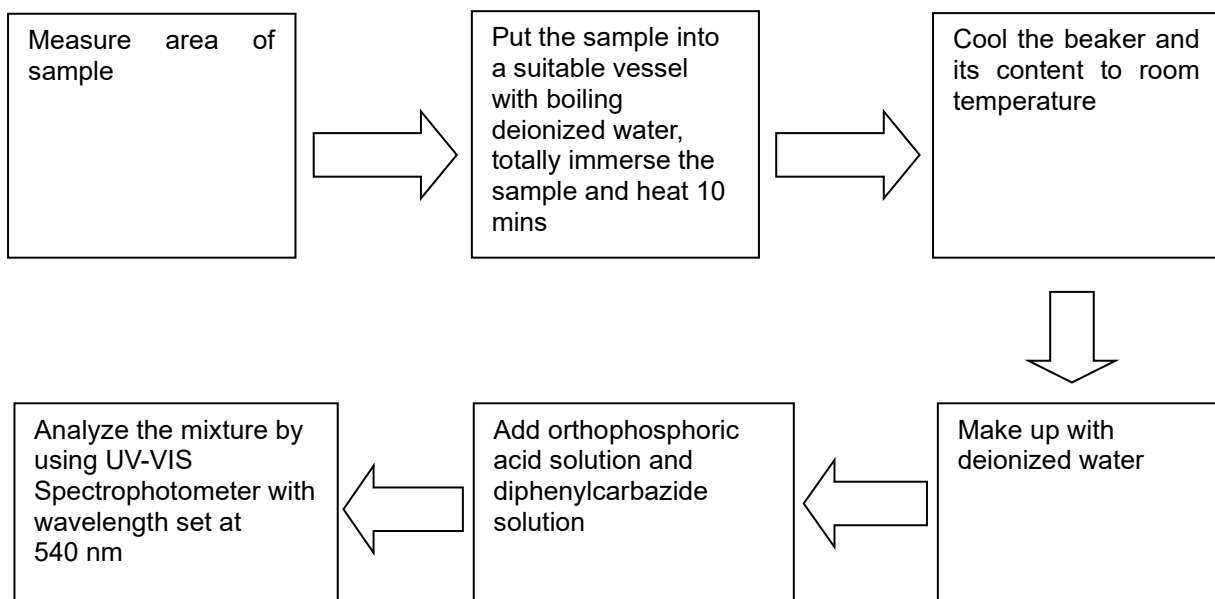
Soluble polymers:



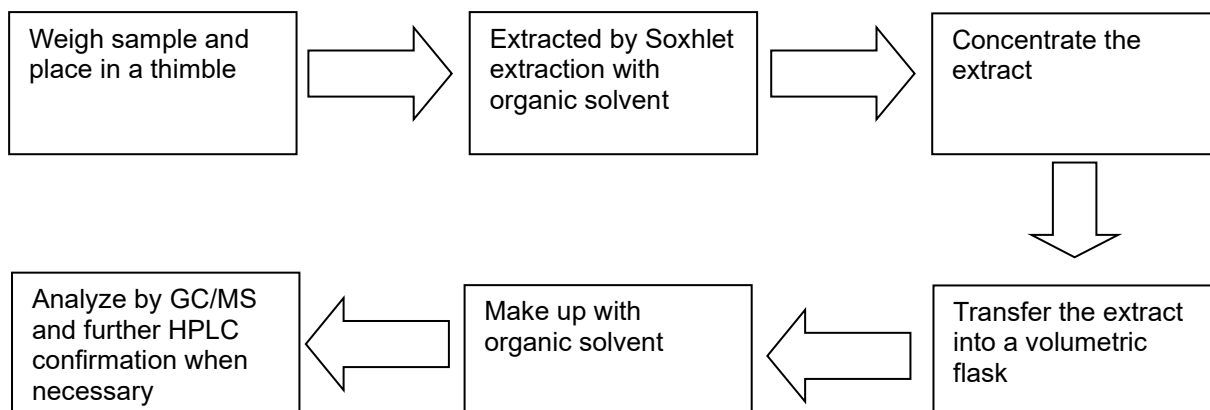
Insoluble/unknown polymers and electronics without Sb:



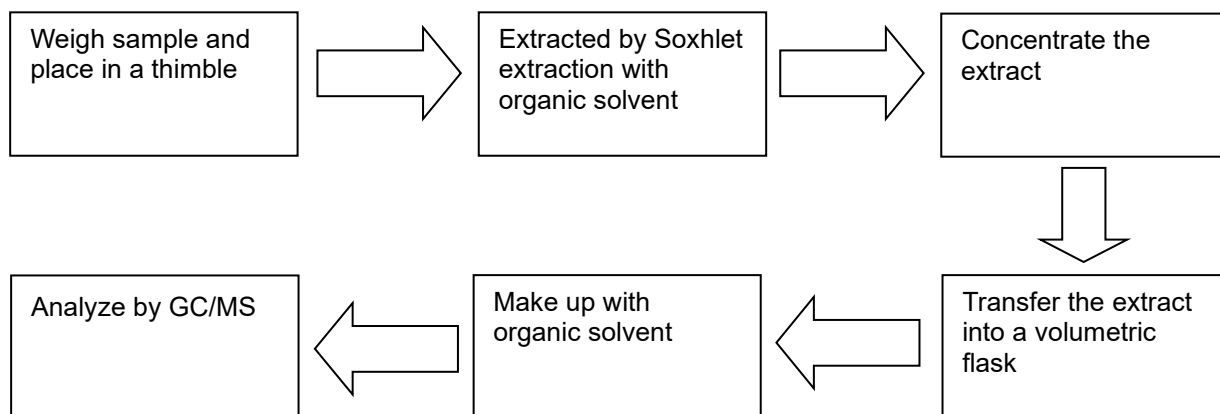
4. Test for Chromium (VI) ( $\text{Cr}^{6+}$ ) Content (Boiling Water Extraction)



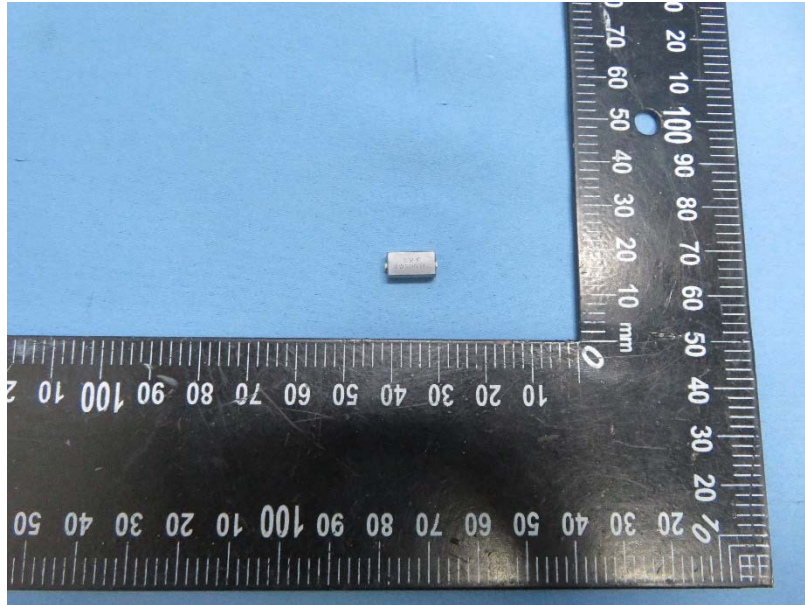
5. Test for PBBs/PBDEs Contents



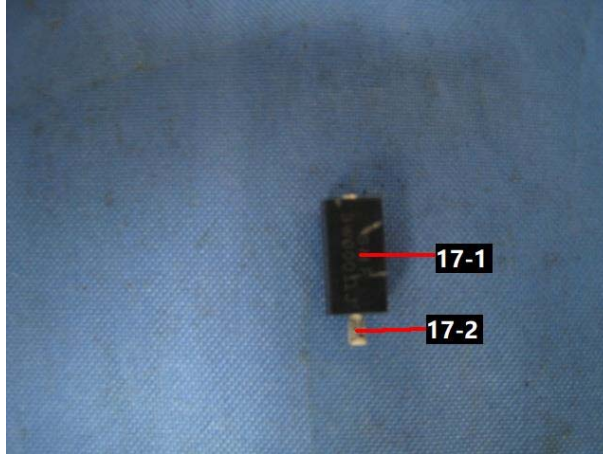
6. Test for Phthalate Contents



## Sample photo







\*\*\*\*\*

End of report

*This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.*

