



# Test Report

Report No. A2240413041112

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**Company Name** DONGGUAN AILLEN ELECTRONIC TECHNOLOGY CO., LTD.  
**shown on Report**  
**Address** NO.28, JINGGANG ZHONG ROAD, SHATIAN TOWN, DONGGUAN CITY,  
GUANGDONG PROVINCE, P. R. CHINA

**The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant**

**Sample Name** Metal Film Resistor  
**Sample Received Date** Jul. 15, 2024  
**Testing Period** Jul. 15, 2024 to Jul. 25, 2024

**Test Requested** As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP) in the submitted sample(s).

**Test Method/Test Result(s)** Please refer to the following page(s).

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## Conclusion

Tested Sample	According to standard/directive	Result
Submitted Sample	RoHS Directive 2011/65/EU with amendment (EU) 2015/863	PASS

\*\*\*\*\*

PASS means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.



Approved by

Date

Jul. 25, 2024

Hill Zheng  
Technical Manager

No. R677501571

Centre Testing International Group Co., Ltd.

C11 Building, Ying Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

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Test Method

Tested Item(s)	Test Method	Measured Equipment(s)
Lead (Pb)	IEC 62321-5:2013	ICP-OES
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium (Cr(VI))	IEC 62321-7-1:2015	UV-Vis
	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS

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## Test Result(s)

Tested Item(s)	Result		MDL	Limit
	1	2		
Lead (Pb)	N.D.	N.D.	10 mg/kg	1000 mg/kg
Cadmium (Cd)	N.D.	N.D.	10 mg/kg	100 mg/kg
Mercury (Hg)	N.D.	N.D.	10 mg/kg	1000 mg/kg
Hexavalent Chromium (Cr(VI))	--	N.D. ▼	0.10 µg/cm <sup>2</sup> (LOQ)	1000 mg/kg
	N.D.	--	20 mg/kg	1000 mg/kg

Tested Item(s)	Result	MDL	Limit
	2		
Polybrominated Biphenyls (PBBs)*			
Monobromobiphenyl	N.D.	100 mg/kg	1000 mg/kg
Dibromobiphenyl	N.D.	100 mg/kg	
Tribromobiphenyl	N.D.	100 mg/kg	
Tetrabromobiphenyl	N.D.	100 mg/kg	
Pentabromobiphenyl	N.D.	100 mg/kg	
Hexabromobiphenyl	N.D.	100 mg/kg	
Heptabromobiphenyl	N.D.	100 mg/kg	
Octabromobiphenyl	N.D.	100 mg/kg	
Nonabromobiphenyl	N.D.	100 mg/kg	
Decabromobiphenyl	N.D.	100 mg/kg	

Tested Item(s)	Result	MDL	Limit
	2		
Polybrominated Diphenyl Ethers (PBDEs)*			
Monobromodiphenyl ether	N.D.	100 mg/kg	1000 mg/kg
Dibromodiphenyl ether	N.D.	100 mg/kg	
Tribromodiphenyl ether	N.D.	100 mg/kg	
Tetrabromodiphenyl ether	N.D.	100 mg/kg	
Pentabromodiphenyl ether	N.D.	100 mg/kg	
Hexabromodiphenyl ether	N.D.	100 mg/kg	
Heptabromodiphenyl ether	N.D.	100 mg/kg	
Octabromodiphenyl ether	N.D.	100 mg/kg	
Nonabromodiphenyl ether	N.D.	100 mg/kg	
Decabromodiphenyl ether	N.D.	100 mg/kg	

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Tested Item(s)	Result	MDL	Limit
	2		
Phthalates (DBP, BBP, DEHP, DIBP)*			
Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg

Tested Item(s)	Result	MDL	Limit
	1		
Polybrominated Biphenyls (PBBs)			
Monobromobiphenyl	N.D.	100 mg/kg	1000 mg/kg
Dibromobiphenyl	N.D.	100 mg/kg	
Tribromobiphenyl	N.D.	100 mg/kg	
Tetrabromobiphenyl	N.D.	100 mg/kg	
Pentabromobiphenyl	N.D.	100 mg/kg	
Hexabromobiphenyl	N.D.	100 mg/kg	
Heptabromobiphenyl	N.D.	100 mg/kg	
Octabromobiphenyl	N.D.	100 mg/kg	
Nonabromobiphenyl	N.D.	100 mg/kg	
Decabromobiphenyl	N.D.	100 mg/kg	

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Tested Item(s)	Result	MDL	Limit
	1		
Polybrominated Diphenyl Ethers (PBDEs)			
Monobromodiphenyl ether	N.D.	100 mg/kg	1000 mg/kg
Dibromodiphenyl ether	N.D.	100 mg/kg	
Tribromodiphenyl ether	N.D.	100 mg/kg	
Tetrabromodiphenyl ether	N.D.	100 mg/kg	
Pentabromodiphenyl ether	N.D.	100 mg/kg	
Hexabromodiphenyl ether	N.D.	100 mg/kg	
Heptabromodiphenyl ether	N.D.	100 mg/kg	
Octabromodiphenyl ether	N.D.	100 mg/kg	
Nonabromodiphenyl ether	N.D.	100 mg/kg	
Decabromodiphenyl ether	N.D.	100 mg/kg	

Tested Item(s)	Result	MDL	Limit
	1		
Phthalates (DBP, BBP, DEHP, DIBP)			
Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg

## Sample/Part Description

No.	CTI Sample ID	Description
1	1	Blue body(Tested as a whole)#
2	2	Silvery metal pin

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- Remark:**
- The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.
  - #The sample(s) was tested as a whole, because it's impossible to disassemble or separate it by current equipment and technology. The result(s) shown on this report may be different from the content of any homogeneous material.
  - MDL = Method Detection Limit
  - N.D. = Not Detected (<MDL or LOQ)
  - mg/kg = ppm = parts per million
  - 1000 mg/kg = 0.1%
  - LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10  $\mu\text{g}/\text{cm}^2$
  - ▼The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10  $\mu\text{g}/\text{cm}^2$ . The coating is considered a non-Cr(VI) based coating. Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.
- Note:** “\*” indicates the item(s)/method(s) is (are) not in CNAS accreditation scope.

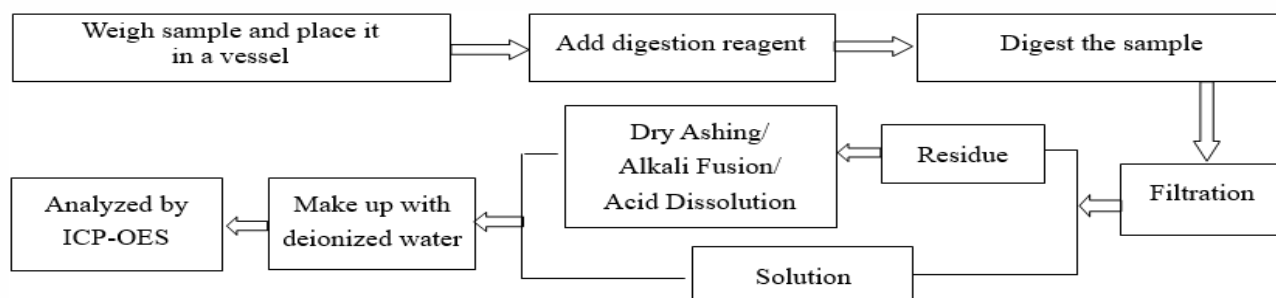
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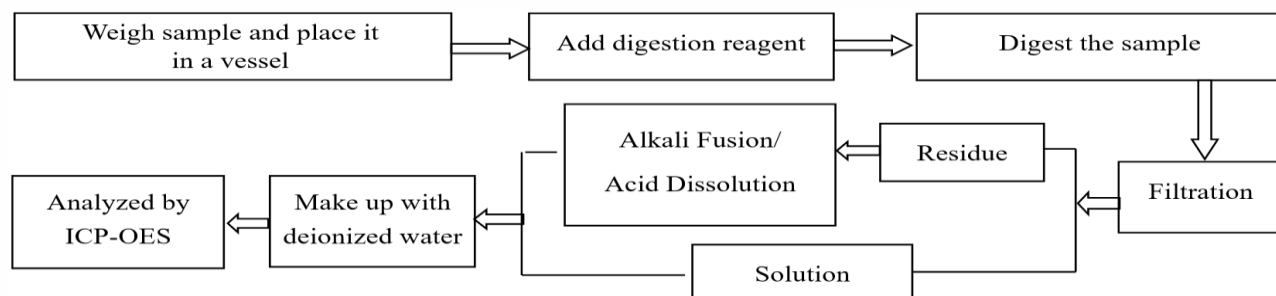
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## Test Process

### 1. Lead (Pb), Cadmium (Cd), Chromium(Cr)

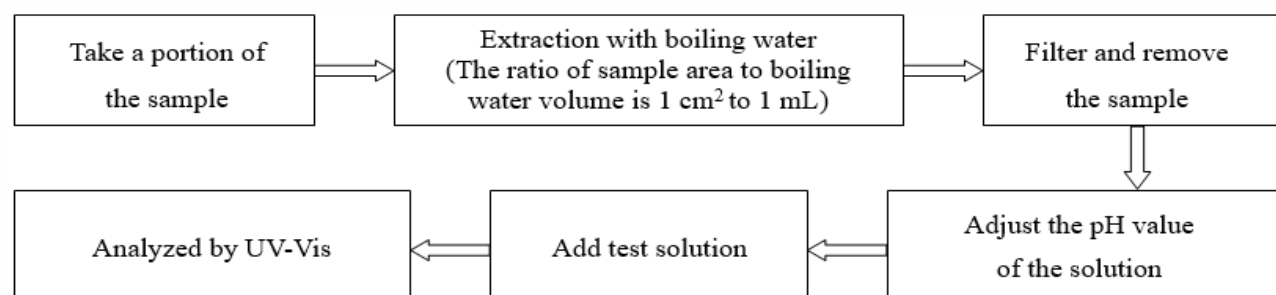


### 2. Mercury (Hg)

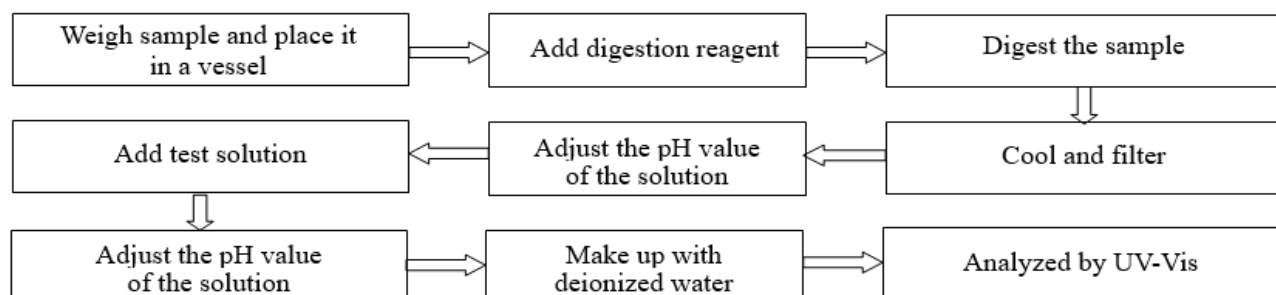


### 3. Hexavalent Chromium (Cr(VI))

#### (1) IEC 62321-7-1:2015



#### (2) IEC 62321-7-2:2017

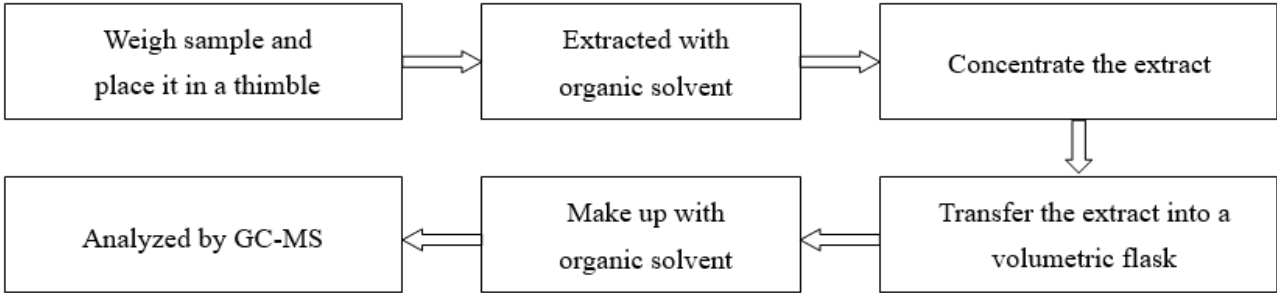


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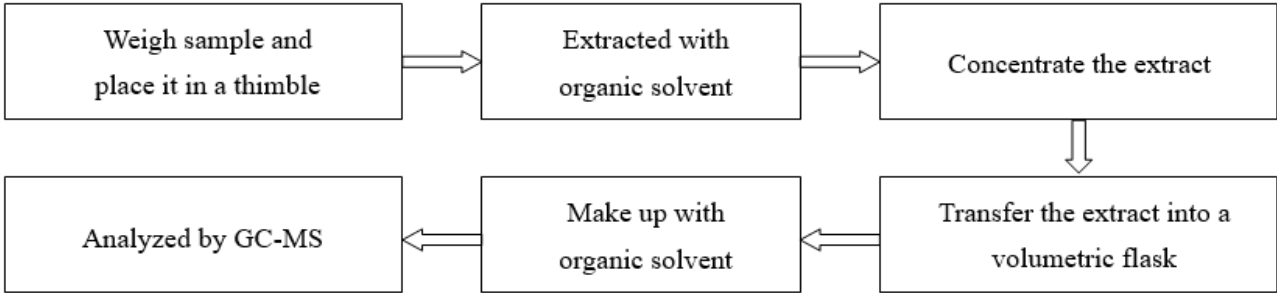
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4. Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)



5. Phthalates (DBP, BBP, DEHP, DIBP)





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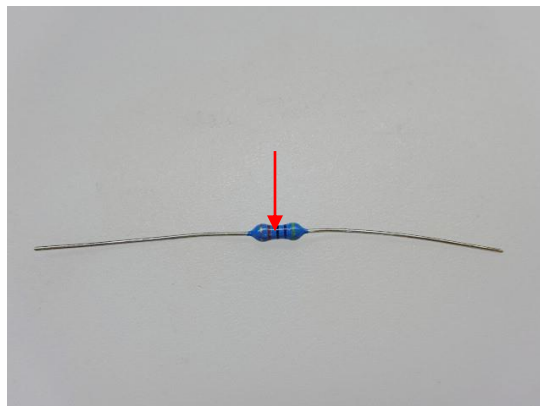
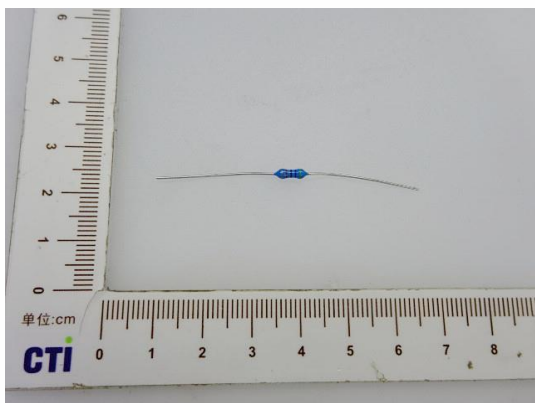
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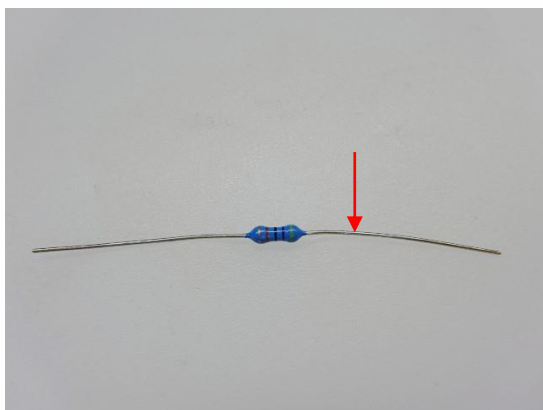
## Photo(s) of the sample(s)

Final Product

1



2



### Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. 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 / CNAS-GL015:2022;
5. Without written approval of CTI, this report can't be reproduced except in full;
6. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

\*\*\* End of Report \*\*\*