



Test Report

Report No. A2240413041101

Page 1 of 10

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 Film Capacitor (Powdered)
Sample Received Date Jul. 15, 2024
Testing Period Jul. 15, 2024 to Jul. 24, 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).

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 Hill Zheng

Date

Jul. 24, 2024

Hill Zheng
Technical Manager

No. R677501568

Centre Testing International Group Co.,Ltd.

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

Test Report

Report No. A2240413041101

Page 2 of 10

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 |

Test Report

Report No. A2240413041101

Page 3 of 10

Test Result(s)

| Tested Item(s) | Result | | | MDL | Limit |
|------------------------------|--------|------|----------|----------------------------------|------------|
| | 1 | 2 | 3 | | |
| Lead (Pb) | N.D. | N.D. | 11 mg/kg | 10 mg/kg | 1000 mg/kg |
| Cadmium (Cd) | N.D. | N.D. | N.D. | 10 mg/kg | 100 mg/kg |
| Mercury (Hg) | N.D. | N.D. | N.D. | 10 mg/kg | 1000 mg/kg |
| Hexavalent Chromium (Cr(VI)) | -- | -- | N.D. ▽ | 0.10 µg/cm ² (LOQ) | 1000 mg/kg |
| | N.D. | N.D. | -- | 20 mg/kg | 1000 mg/kg |

| Tested Item(s) | Result | MDL | Limit |
|------------------------------|--------|----------------------------------|------------|
| | 4 | | |
| Lead (Pb) | N.D. | 10 mg/kg | 1000 mg/kg |
| Cadmium (Cd) | N.D. | 10 mg/kg | 100 mg/kg |
| Mercury (Hg) | N.D. | 10 mg/kg | 1000 mg/kg |
| Hexavalent Chromium (Cr(VI)) | N.D. ▽ | 0.10 µg/cm ² (LOQ) | 1000 mg/kg |
| | -- | 20 mg/kg | 1000 mg/kg |

| Tested Item(s) | Result | | MDL | Limit |
|---|--------|------|-----------|------------|
| | 3 | 4 | | |
| Polybrominated Biphenyls (PBBs)* | | | | |
| Monobromobiphenyl | N.D. | N.D. | 100 mg/kg | 1000 mg/kg |
| Dibromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Tribromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Tetrabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Pentabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Hexabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Heptabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Octabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Nonabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Decabromobiphenyl | N.D. | N.D. | 100 mg/kg | |

Test Report

Report No. A2240413041101

Page 4 of 10

| Tested Item(s) | Result | | MDL | Limit |
|--|--------|------|-----------|------------|
| | 3 | 4 | | |
| Polybrominated Diphenyl Ethers (PBDEs)* | | | | |
| Monobromodiphenyl ether | N.D. | N.D. | 100 mg/kg | 1000 mg/kg |
| Dibromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Tribromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Tetrabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Pentabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Hexabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Heptabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Octabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Nonabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Decabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |

| Tested Item(s) | Result | | MDL | Limit |
|---|--------|------|----------|------------|
| | 3 | 4 | | |
| Phthalates (DBP, BBP, DEHP, DIBP)* | | | | |
| Dibutyl phthalate (DBP) CAS#:84-74-2 | N.D. | N.D. | 50 mg/kg | 1000 mg/kg |
| Butyl benzyl phthalate (BBP) CAS#:85-68-7 | N.D. | N.D. | 50 mg/kg | 1000 mg/kg |
| Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7 | N.D. | N.D. | 50 mg/kg | 1000 mg/kg |
| Diisobutyl phthalate (DIBP) CAS#:84-69-5 | N.D. | N.D. | 50 mg/kg | 1000 mg/kg |

Test Report

Report No. A2240413041101

Page 5 of 10

| Tested Item(s) | Result | | MDL | Limit |
|--|--------|------|-----------|------------|
| | 1 | 2 | | |
| Polybrominated Biphenyls (PBBs) | | | | |
| Monobromobiphenyl | N.D. | N.D. | 100 mg/kg | 1000 mg/kg |
| Dibromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Tribromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Tetrabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Pentabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Hexabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Heptabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Octabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Nonabromobiphenyl | N.D. | N.D. | 100 mg/kg | |
| Decabromobiphenyl | N.D. | N.D. | 100 mg/kg | |

| Tested Item(s) | Result | | MDL | Limit |
|---|--------|------|-----------|------------|
| | 1 | 2 | | |
| Polybrominated Diphenyl Ethers (PBDEs) | | | | |
| Monobromodiphenyl ether | N.D. | N.D. | 100 mg/kg | 1000 mg/kg |
| Dibromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Tribromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Tetrabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Pentabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Hexabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Heptabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Octabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Nonabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |
| Decabromodiphenyl ether | N.D. | N.D. | 100 mg/kg | |

Test Report

Report No. A2240413041101

Page 6 of 10

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

Sample/Part Description

| No. | CTI Sample ID | Description |
|-----|---------------|-----------------------------|
| 1 | 1 | Brown red solid |
| 2 | 2 | Transparent/silvery film |
| 3 | 3 | Silvery metal soldering tin |
| 4 | 4 | Silvery metal |

Remark: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.

-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.

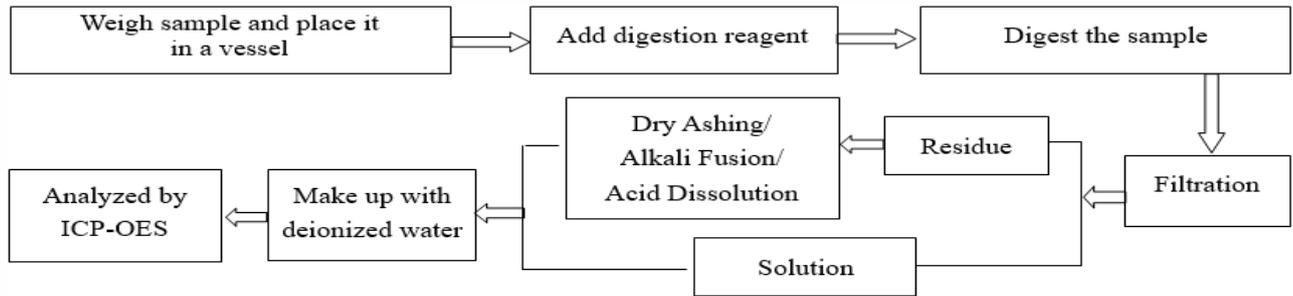
Test Report

Report No. A2240413041101

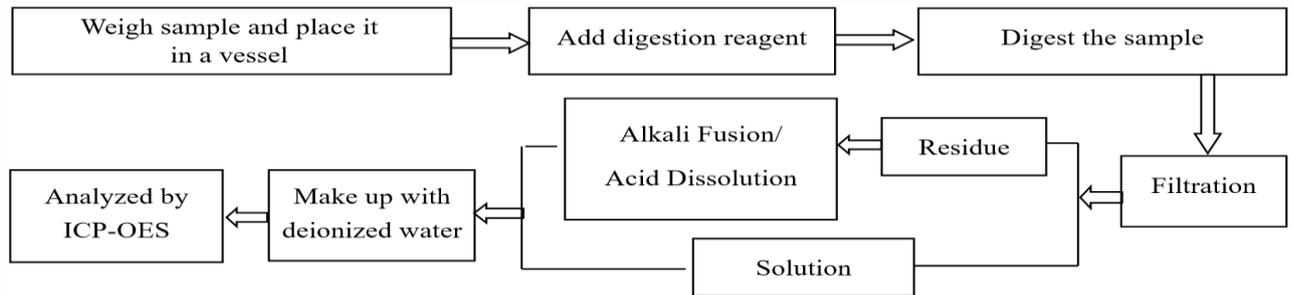
Page 7 of 10

Test Process

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

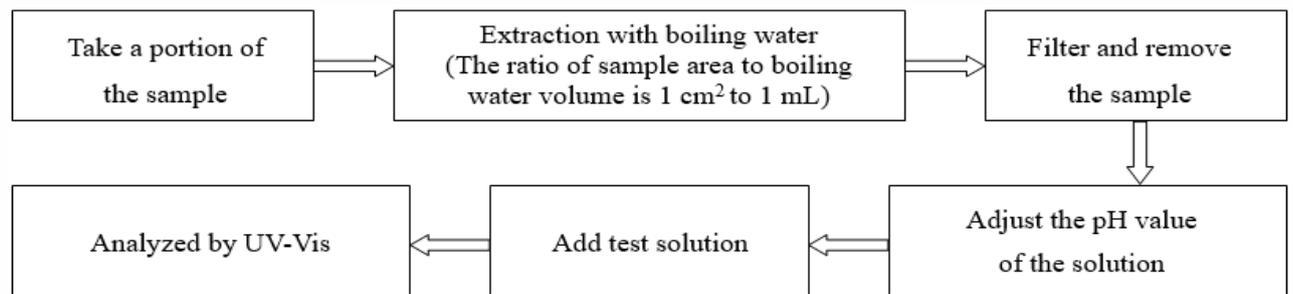


2. Mercury (Hg)

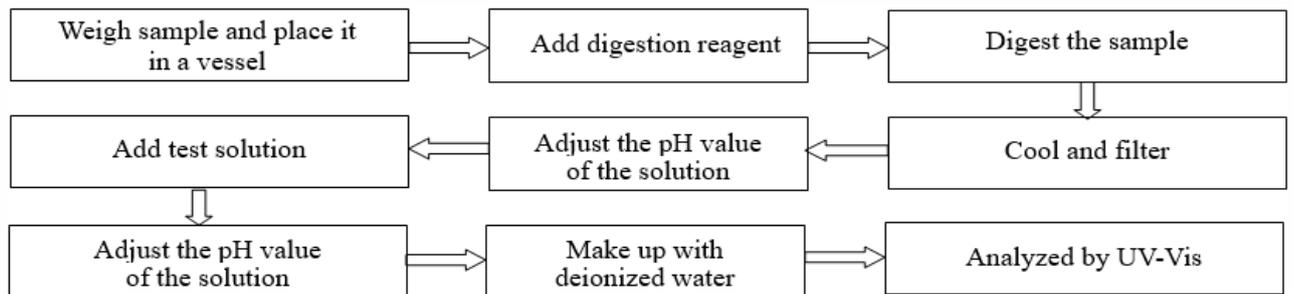


3. Hexavalent Chromium (Cr(VI))

(1) IEC 62321-7-1:2015



(2) IEC 62321-7-2:2017

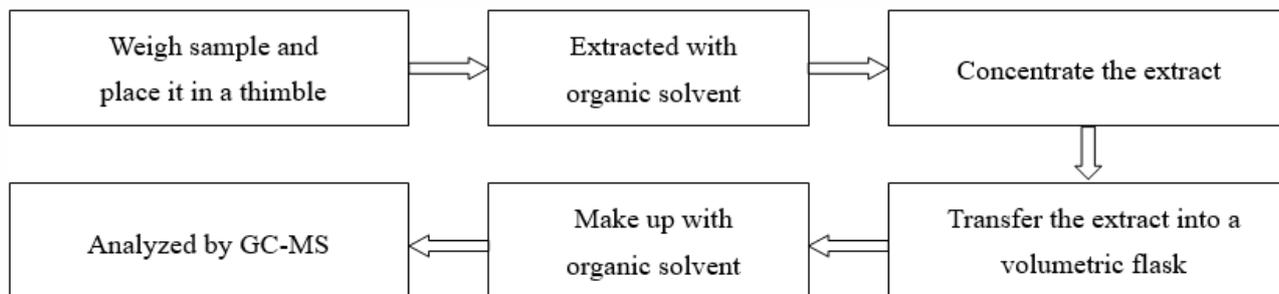


Test Report

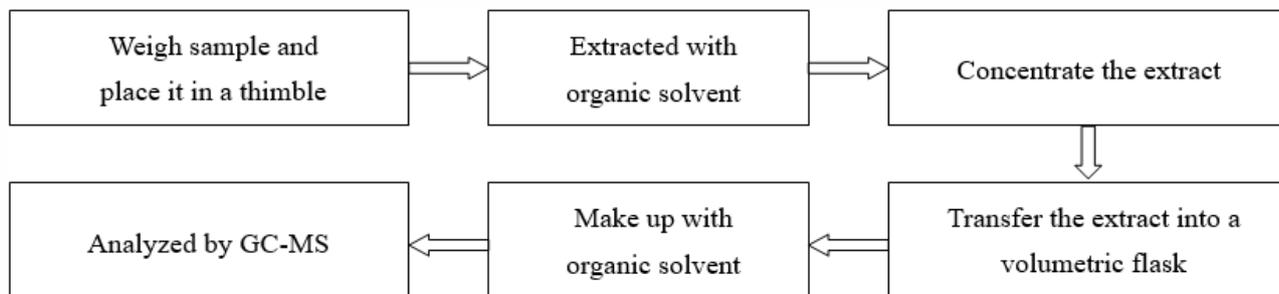
Report No. A2240413041101

Page 8 of 10

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



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



Test Report

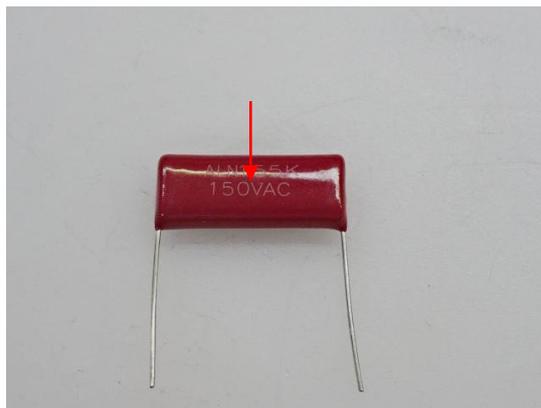
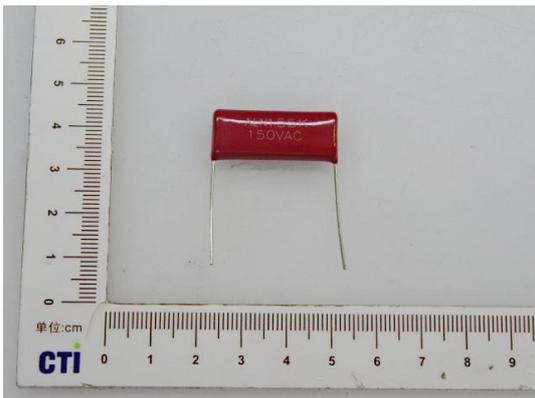
Report No. A2240413041101

Page 9 of 10

Photo(s) of the sample(s)

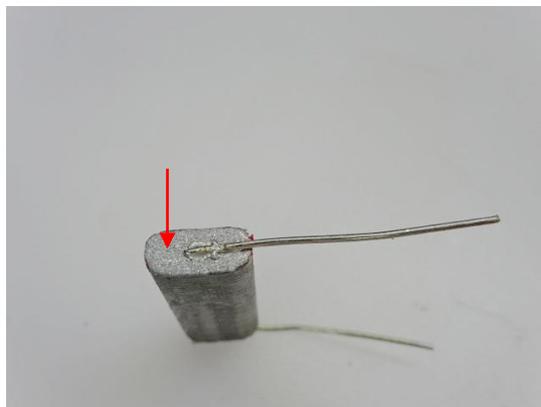
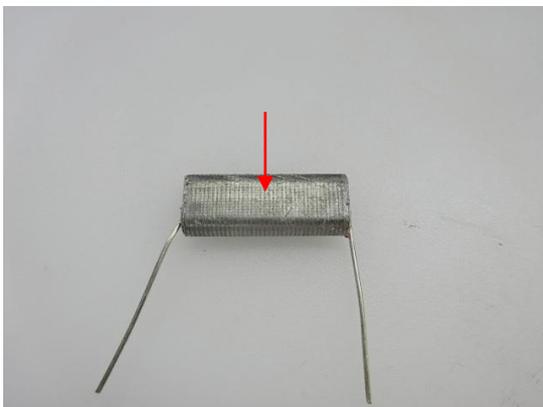
Final Product

1

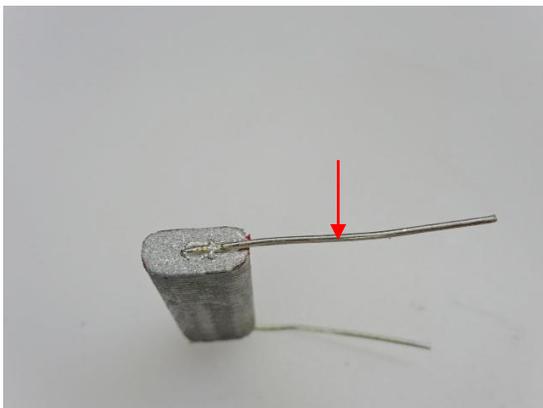


2

3



4



Test Report

Report No. A2240413041101

Page 10 of 10

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 ***

