# Test Report

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| | |
|---|---|
| **Company Name shown on Report** | DONGGUAN AILLEN ELECTRONIC TECHNOLOGY CO., LTD. |
| **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 | Monolithic capacitor(Radial)/Monolithic capacitor(Axial) |
| Sample Received Date | Jul. 19, 2023 |
| Testing Period | Jul. 31, 2023 to Aug. 7, 2023 |

| | |
|---|---|
| **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). |

Approved by: Hill Zheng Date Aug. 11, 2023

Hill Zheng
Technical Manager

No. R179758329

# Test Report



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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 |

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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.

# Test Report



| Sample No. | Reference Report No. - Sample No. |
|---|---|
| 2.2 | A2230377936103R1-1.2 |

Remark:

The samples with the reference information in the table above are non-tested in this report. According to the client's statement, the material of the samples in the column "Reference Report No. - Sample No. " in the table above are the same as the " Sample No. ".

# Test Report



**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



**Test Result(s)**

| Tested Item(s) | Result | | MDL | Limit |
|---|---|---|---|---|
| | 1.1 | 1.2 | | |
| Lead (Pb) | N.D. | N.D. | 2 mg/kg | 1000 mg/kg |
| Cadmium (Cd) | N.D. | N.D. | 2 mg/kg | 100 mg/kg |
| Mercury (Hg) | N.D. | N.D. | 2 mg/kg | 1000 mg/kg |
| Hexavalent Chromium (Cr(VI)) | N.D. | -- | 8 mg/kg | 1000 mg/kg |
| | -- | N.D.▼ | 0.10 μg/cm ² (LOQ) | 1000 mg/kg |

| Tested Item(s) | Result | MDL | Limit |
|---|---|---|---|
| | 2.1 | | |
| Lead (Pb) | N.D. | 2 mg/kg | 1000 mg/kg |
| Cadmium (Cd) | N.D. | 2 mg/kg | 100 mg/kg |
| Mercury (Hg) | N.D. | 2 mg/kg | 1000 mg/kg |
| Hexavalent Chromium (Cr(VI)) | N.D. | 8 mg/kg | 1000 mg/kg |
| | -- | 0.10 μg/cm ² (LOQ) | 1000 mg/kg |

| Tested Item(s) | Result | | MDL | Limit |
|---|---|---|---|---|
| | 1.1 | 2.1 | | |
| **Polybrominated Biphenyls (PBBs)** | | | | |
| Monobromobiphenyl | N.D. | N.D. | 5 mg/kg | 1000 mg/kg |
| Dibromobiphenyl | N.D. | N.D. | 5 mg/kg | |
| Tribromobiphenyl | N.D. | N.D. | 5 mg/kg | |
| Tetrabromobiphenyl | N.D. | N.D. | 5 mg/kg | |
| Pentabromobiphenyl | N.D. | N.D. | 5 mg/kg | |
| Hexabromobiphenyl | N.D. | N.D. | 5 mg/kg | |
| Heptabromobiphenyl | N.D. | N.D. | 5 mg/kg | |
| Octabromobiphenyl | N.D. | N.D. | 5 mg/kg | |
| Nonabromobiphenyl | N.D. | N.D. | 5 mg/kg | |
| Decabromobiphenyl | N.D. | N.D. | 5 mg/kg | |

# Test Report



| Tested Item(s) | Result | MDL | Limit |
|---|---|---|---|
| | 1.2 | | |
| **Polybrominated Biphenyls (PBBs)*** | | | |
| Monobromobiphenyl | N.D. | 5 mg/kg | 1000 mg/kg |
| Dibromobiphenyl | N.D. | 5 mg/kg | |
| Tribromobiphenyl | N.D. | 5 mg/kg | |
| Tetrabromobiphenyl | N.D. | 5 mg/kg | |
| Pentabromobiphenyl | N.D. | 5 mg/kg | |
| Hexabromobiphenyl | N.D. | 5 mg/kg | |
| Heptabromobiphenyl | N.D. | 5 mg/kg | |
| Octabromobiphenyl | N.D. | 5 mg/kg | |
| Nonabromobiphenyl | N.D. | 5 mg/kg | |
| Decabromobiphenyl | N.D. | 5 mg/kg | |

| Tested Item(s) | Result | | MDL | Limit |
|---|---|---|---|---|
| | 1.1 | 2.1 | | |
| **Polybrominated Diphenyl Ethers (PBDEs)** | | | | |
| Monobromodiphenyl ether | N.D. | N.D. | 5 mg/kg | 1000 mg/kg |
| Dibromodiphenyl ether | N.D. | N.D. | 5 mg/kg | |
| Tribromodiphenyl ether | N.D. | N.D. | 5 mg/kg | |
| Tetrabromodiphenyl ether | N.D. | N.D. | 5 mg/kg | |
| Pentabromodiphenyl ether | N.D. | N.D. | 5 mg/kg | |
| Hexabromodiphenyl ether | N.D. | N.D. | 5 mg/kg | |
| Heptabromodiphenyl ether | N.D. | N.D. | 5 mg/kg | |
| Octabromodiphenyl ether | N.D. | N.D. | 5 mg/kg | |
| Nonabromodiphenyl ether | N.D. | N.D. | 5 mg/kg | |
| Decabromodiphenyl ether | N.D. | N.D. | 5 mg/kg | |

# Test Report



| Tested Item(s) | Result | MDL | Limit |
|---|---|---|---|
| | 1.2 | | |
| **Polybrominated Diphenyl Ethers (PBDEs)*** | | | |
| Monobromodiphenyl ether | N.D. | 5 mg/kg | 1000 mg/kg |
| Dibromodiphenyl ether | N.D. | 5 mg/kg | |
| Tribromodiphenyl ether | N.D. | 5 mg/kg | |
| Tetrabromodiphenyl ether | N.D. | 5 mg/kg | |
| Pentabromodiphenyl ether | N.D. | 5 mg/kg | |
| Hexabromodiphenyl ether | N.D. | 5 mg/kg | |
| Heptabromodiphenyl ether | N.D. | 5 mg/kg | |
| Octabromodiphenyl ether | N.D. | 5 mg/kg | |
| Nonabromodiphenyl ether | N.D. | 5 mg/kg | |
| Decabromodiphenyl ether | N.D. | 5 mg/kg | |

| Tested Item(s) | Result | | MDL | Limit |
|---|---|---|---|---|
| | 1.1 | 2.1 | | |
| **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 |

| Tested Item(s) | Result | MDL | Limit |
|---|---|---|---|
| | 1.2 | | |
| **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 |

# Test Report



**Sample/Part Description**

| Sample No. | Description |
|---|---|
| 1.1 | Yellow body(Tested as a whole) *1 |
| 1.2 | Silvery metal pin |
| 2.1 | Yellow body(Tested as a whole) *1 |

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

**-*1The 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 μg/cm$^2$

-▼The sample is negative for Cr(VI) − The Cr(VI) concentration is below 0.10 μg/cm$^2$. The coating is considered a non-Cr(VI) based coating.

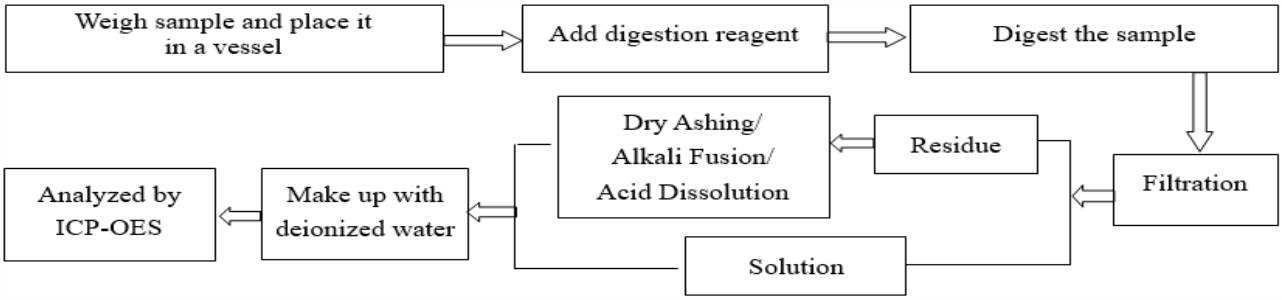
- The test result(s) (except for Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP) of sample 1.2) is(are) presented in reference to the result(s) that reported in A2230355012103.

**Note:** **-*Indicates the item(s)/method(s) is (are) not in CNAS accreditation scope.**

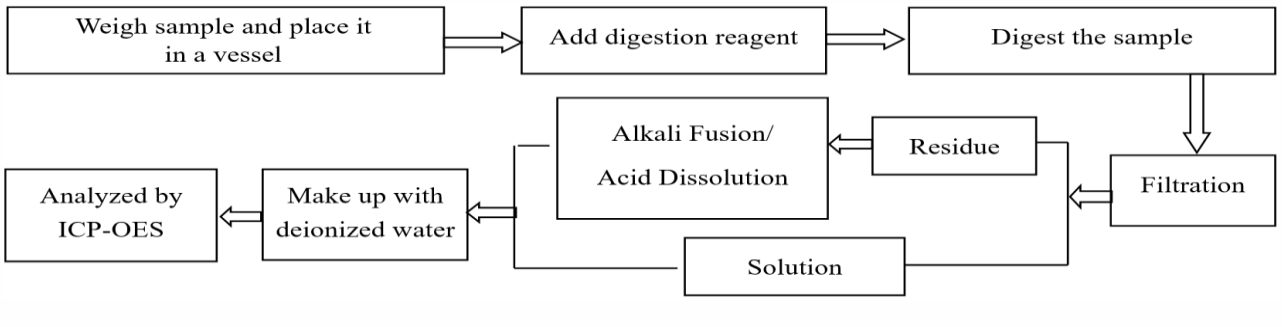
**-This testing report revised the full text based on the original report of No. A2230377936103. This testing report displaces the original one which was invalid since the date of this testing report released.**

**Test Process**

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

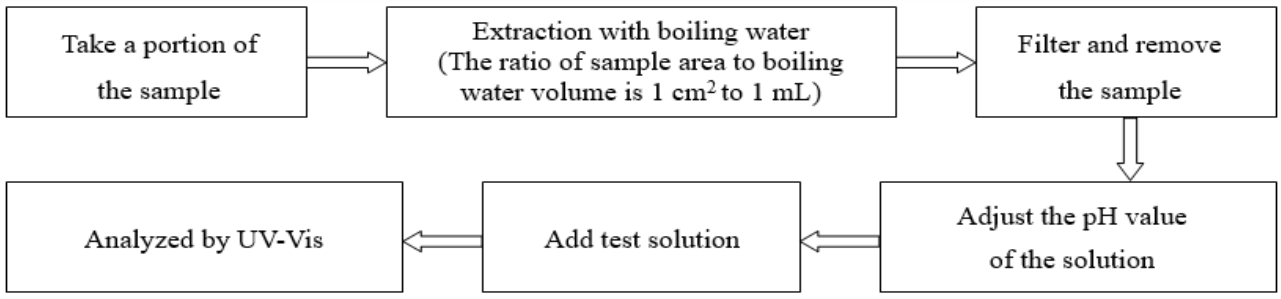



**2. Mercury (Hg)**

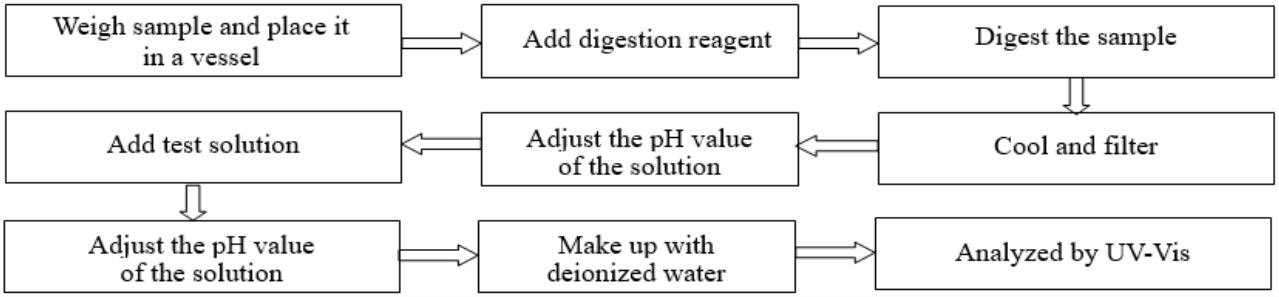



**3. Hexavalent Chromium (Cr(VI))**

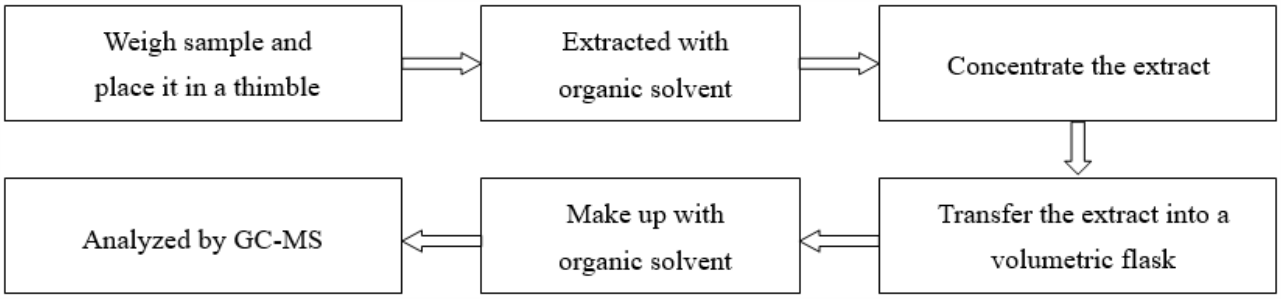
**(1) IEC 62321-7-1:2015**



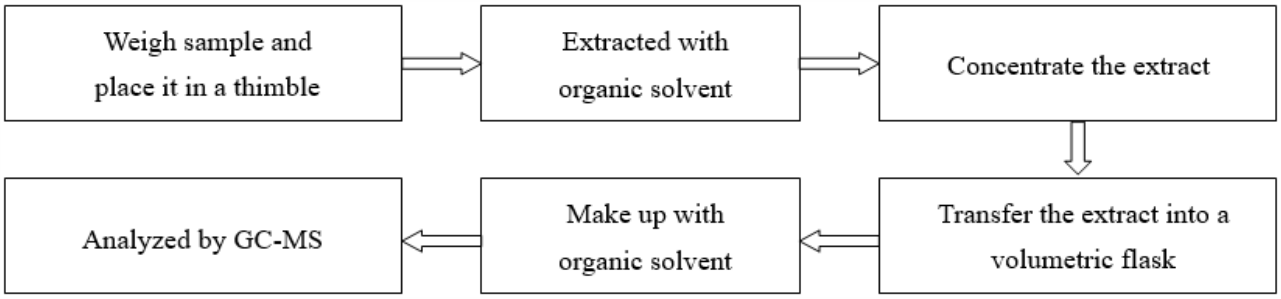

**(2) IEC 62321-7-2:2017**



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




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

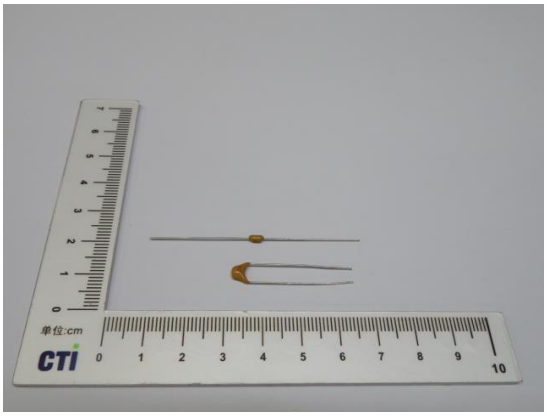


# Test Report

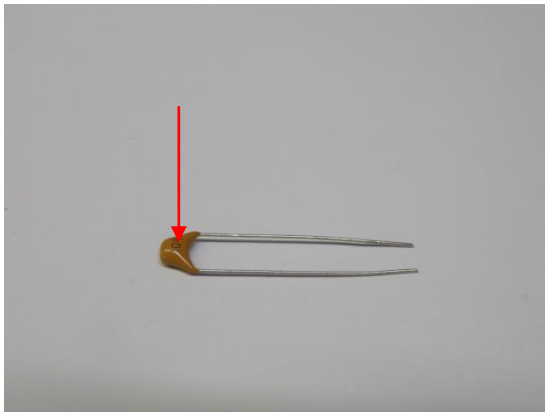


## Photo(s) of the sample(s)

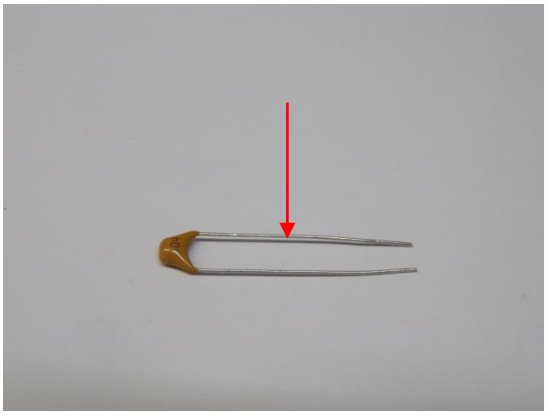
Final Product



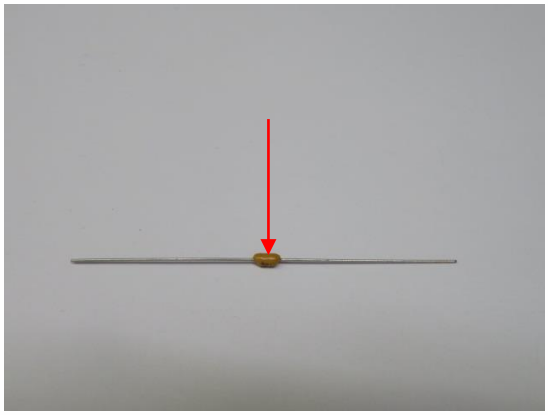

1.1



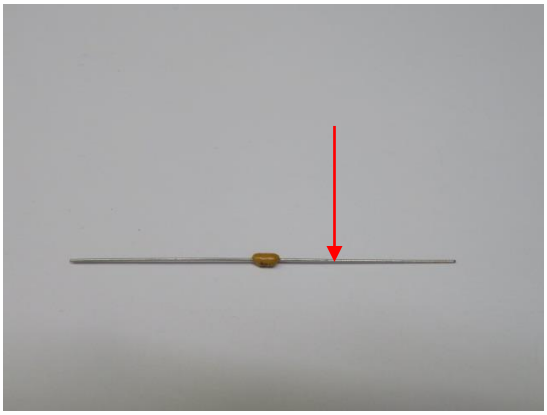
1.2



2.1



2.2（Client Reference Photo (Non tested sample)）



# Test Report



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. Without written approval of CTI, this report can't be reproduced except in full;
5. 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 ***