



# Test Report No. F690101/LF-CTSAYAA17-17340

Issued Date : 2017. 03. 28

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## AUTOCFT.CO.LTD

3da-707, Gyeonggigwagidae-ro 181  
Siheung-si, Gyeonggi-do  
Korea



The following sample(s) was/were submitted and identified by/on behalf of the client as:-

**SGS File No.** : AYAA17-17340  
**Product Name** : Electroless nickel plating  
**Item No./Part No.** : N/A  
**Received Date** : 2017. 03. 17  
**Test Period** : 2017. 03. 17 to 2017. 03. 28  
**Test Results** : For further details, please refer to following page(s)

SGS Korea Co., Ltd.

Jeff Jang / Chemical Lab Mgr

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Sample No. : AYAA17-17340.001  
Sample Description : Electroless nickel plating  
Item No./Part No. : N/A  
Materials : N/A

## Heavy Metals

| Test Items                   | Unit               | Test Method   | MDL | Results |
|------------------------------|--------------------|---|-----|---------|
| Cadmium (Cd)                 | mg/kg              | With reference to IEC 62321-5:2013<br>(Determination of Cadmium by ICP-OES) | 0.5 | N.D.    |
| Lead (Pb)                    | mg/kg              | With reference to IEC 62321-5:2013<br>(Determination of Lead by ICP-OES)    | 5   | N.D.    |
| Mercury (Hg)                 | mg/kg              | With reference to IEC 62321-4:2013<br>(Determination of Mercury by ICP-OES) | 2   | N.D.    |
| Hexavalent Chromium (Cr VI)* | µg/cm <sup>2</sup> | With reference to IEC 62321-7-1:2015<br>(Determination of CrVI by UV-Vis)   | 0.1 | N.D.    |

## Flame Retardants-PBBs/PBDEs

| Test Items              | Unit  | Test Method  | MDL | Results |
|-------------------------|-------|--|-----|---------|
| Monobromobiphenyl       | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Dibromobiphenyl         | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Tribromobiphenyl        | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Tetrabromobiphenyl      | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Pentabromobiphenyl      | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Hexabromobiphenyl       | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Heptabromobiphenyl      | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Octabromobiphenyl       | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Nonabromobiphenyl       | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Decabromobiphenyl       | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Monobromodiphenyl ether | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Dibromodiphenyl ether   | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Tribromodiphenyl ether  | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |

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Sample No. : AYAA17-17340.001  
Sample Description : Electroless nickel plating  
Item No./Part No. : N/A  
Materials : N/A

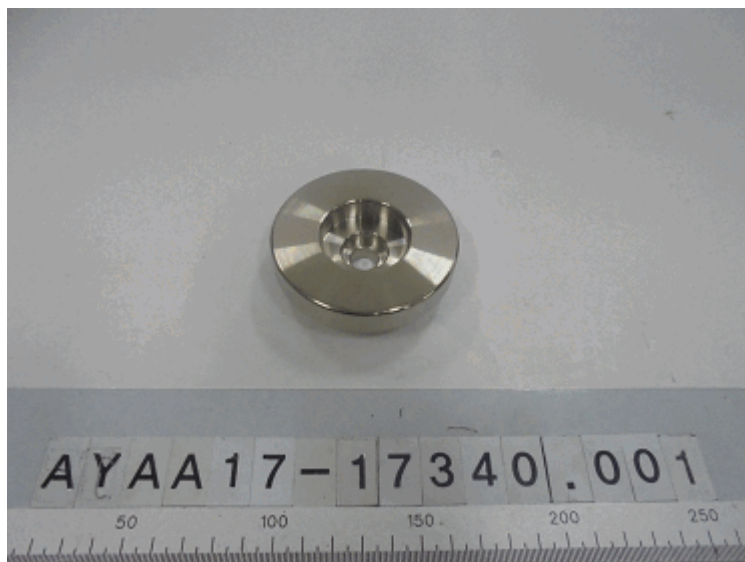
## Flame Retardants-PBBs/PBDEs

| Test Items               | Unit  | Test Method  | MDL | Results |
|--------------------------|-------|--|-----|---------|
| Tetrabromodiphenyl ether | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Pentabromodiphenyl ether | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Hexabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Heptabromodiphenyl ether | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Octabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Nonabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Decabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |

- NOTE:
- (1) N.D. = Not detected.(<MDL)
  - (2) mg/kg = ppm
  - (3) MDL = Method Detection Limit
  - (4) - = No regulation
  - (5) Negative = Undetectable / Positive = Detectable
  - (6) \*\* = Qualitative analysis (No Unit)
  - (7) \* = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 ug/cm2. The sample coating is considered to contain CrVI.  
b. The sample is negative for CrVI if CrVI is n.d. (concentration less than 0.10 ug/cm2). The coating is considered a non-CrVI based coating.  
c. The result between 0.10 ug/cm2 and 0.13 ug/cm2 is considered to be inconclusive - unavoidable coating variations may influence the determination.

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Picture of Sample as Received:



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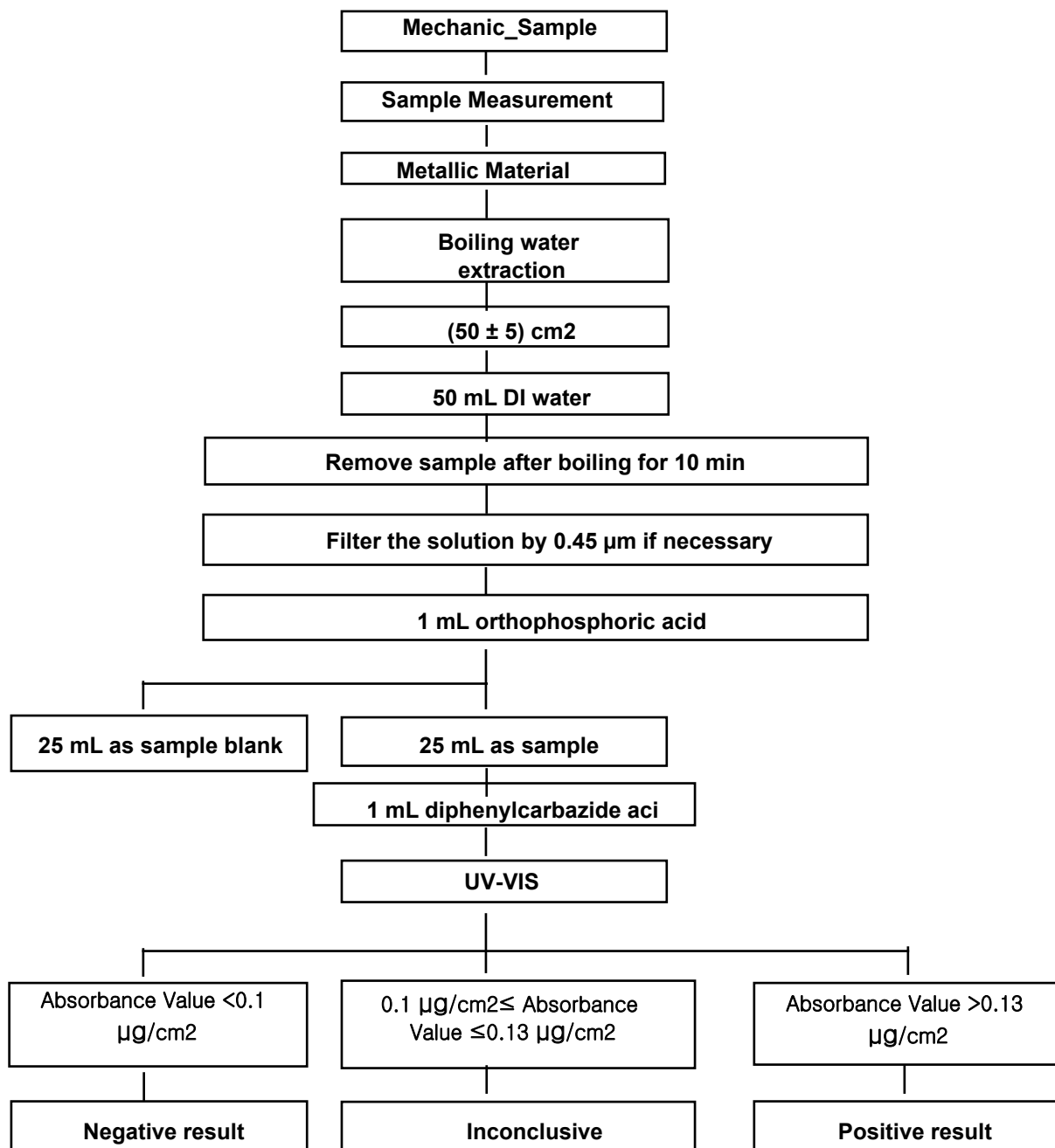
**Testing Flow Chart for RoHS: Cd/Pb/Hg/Cr<sup>6+</sup> /PBBs&PBDEs Testing**



The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.  
Section Chief : Gilsae Yi



Cr<sup>6+</sup>



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

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