

**POONGSAN CORPORATION**

94 Sanam-ro, Onsan-eup  
Ulju-gun, Ulsan  
Korea



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

**SGS File No.** : AYGU24-06224

**Product Name** : C1020

**Item No./Part No.** : Oxygen Free Copper

**Received Date** : 2024. 07. 04

**Test Period** : 2024. 07. 04 to 2024. 07. 23

**Conclusion** : Based on the performed tests on selected part of submitted samples, the results of Cadmium, Lead, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

**Test Results** : For further details, please refer to following page(s)

**SGS Korea Co., Ltd.**  
**/ Busan Branch**



**Taehee Kang / Technical Manager**

The test results of this test report are only limited to samples and sample names provided by the client and do not guarantee the quality of all products of the client. This test report shall not be used for public relation, advertisement, lawsuit and shall not be used by excerpts from it. This test report can be checked through the <http://rohs.kr.sgs.com/checkreport/main>. This test report is not related to KS Q ISO/IEC 17025 and Korea Laboratory Accreditation Scheme.

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**Sample No.** : AYGU24-06224.001  
**Sample Description** : C1020  
**Item No./Part No.** : Oxygen Free Copper  
**Materials** : N/A

**Heavy Metals**

| Test Items                    | Unit               | Test Method  | MDL | Results |
|-------------------------------|--------------------|--|-----|---------|
| Cadmium (Cd)                  | mg/kg              | With reference to IEC 62321-5 : 2013, by ICP-OES           | 0.5 | N.D.    |
| Lead (Pb)                     | mg/kg              | With reference to IEC 62321-5 : 2013, by ICP-OES           | 5   | N.D.    |
| Mercury (Hg)                  | mg/kg              | With reference to IEC 62321-4 : 2013+A1 : 2017, by ICP-OES | 2   | N.D.    |
| Hexavalent Chromium (Cr VI) * | µg/cm <sup>2</sup> | With reference to IEC 62321-7-1 : 2015, 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, by GC-MS | 5   | N.D.    |
| Dibromobiphenyl          | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Tribromobiphenyl         | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Tetrabromobiphenyl       | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Pentabromobiphenyl       | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Hexabromobiphenyl        | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Heptabromobiphenyl       | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Octabromobiphenyl        | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Nonabromobiphenyl        | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Decabromobiphenyl        | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Monobromodiphenyl ether  | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Dibromodiphenyl ether    | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Tribromodiphenyl ether   | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Tetrabromodiphenyl ether | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Pentabromodiphenyl ether | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Hexabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Heptabromodiphenyl ether | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Octabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Nonabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |
| Decabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6 : 2015, by GC-MS | 5   | N.D.    |

**Phthalates**

| Test Items                         | Unit  | Test Method                                    | MDL | Results |
|------------------------------------|-------|--|-----|---------|
| Di-(2-ethylhexyl) phthalate (DEHP) | mg/kg | With reference to IEC 62321-8 : 2017, by GC-MS | 50  | N.D.    |

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Sample No. : AYGU24-06224.001  
 Sample Description : C1020  
 Item No./Part No. : Oxygen Free Copper  
 Materials : N/A

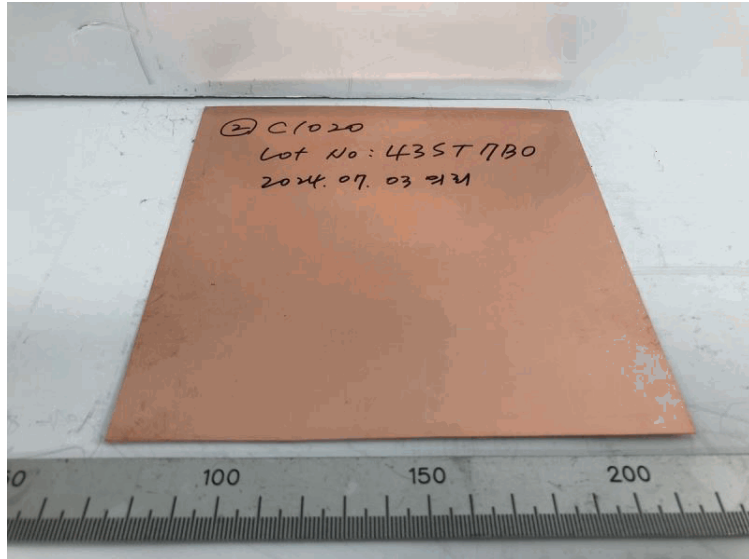
**Phthalates**

| Test Items                   | Unit  | Test Method                                    | MDL | Results |
|------------------------------|-------|--|-----|---------|
| Di-butyl phthalate (DBP)     | mg/kg | With reference to IEC 62321-8 : 2017, by GC-MS | 50  | N.D.    |
| Benzyl butyl phthalate (BBP) | mg/kg | With reference to IEC 62321-8 : 2017, by GC-MS | 50  | N.D.    |
| Di-isobutyl phthalate (DIBP) | mg/kg | With reference to IEC 62321-8 : 2017, by GC-MS | 50  | N.D.    |

- NOTE:
- (1) N.D. = Not detected.(<MDL)
  - (2) mg/kg = ppm
  - (3) µg/kg = ppb
  - (4) MDL = Method Detection Limit
  - (5) - = No regulation
  - (6) Negative = Undetectable / Positive = Detectable
  - (7) \*\* = Qualitative analysis (No Unit)
  - (8) \* = 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:



**AYGU24-06224.001**

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



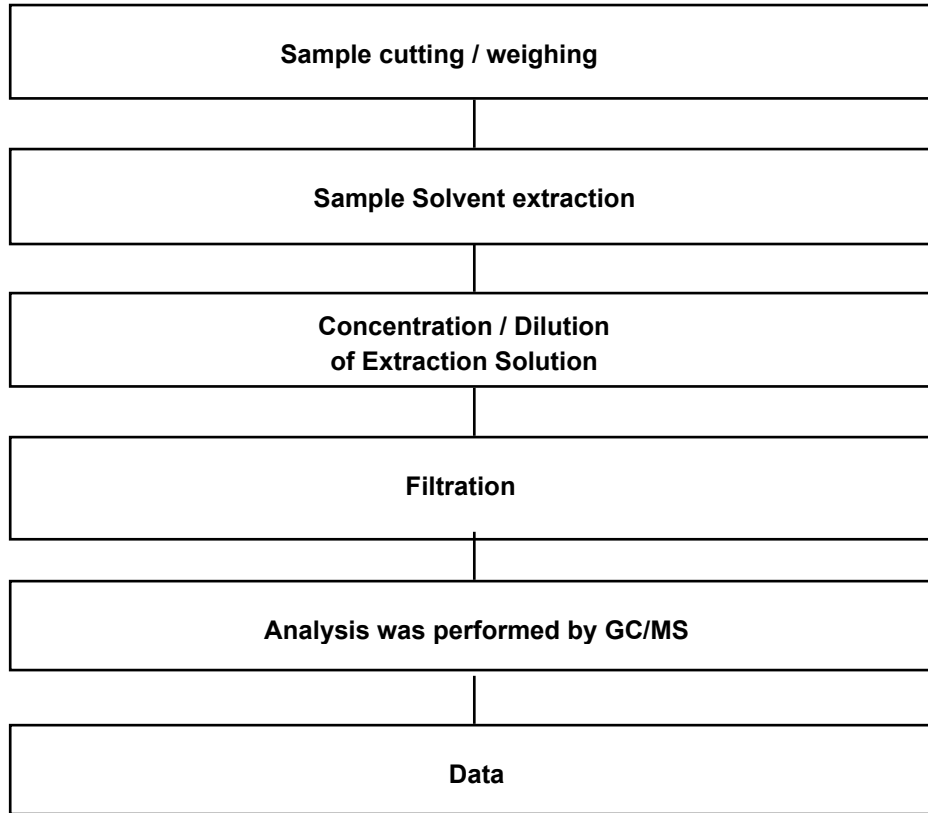
The samples were dissolved totally at the acid digestion step of the above flow chart for Cd,Pb,Hg

- Technician : Gihwan Kim / Choah Jeong / Junkwon Park / Sudong Jo
- Supervisor : Taehee Kang

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### Flow Chart for Phthalate Test



- Technician : Yukyung Park
- Supervisor : Taehee Kang

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

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