The following sample(s) was/were submitted and identified on behalf of the clients as: LEAD-FREE SOLDER WIRE.

SGS Job No.: RP18-003980 - SZ
Date of Sample Received: 29 Mar 2018
Testing Period: 29 Mar 2018 - 03 Apr 2018
Test Requested: Selected test(s) as requested by client.
Test Method: Please refer to next page(s).
Test Results: Based on the performed tests on submitted sample(s), the results of Cadmium, Lead, Mercury, Hexavalent chromium, Polbrominated biphenyls (PBBS), Polbrominated diphenyl ethers (PBDEs) do not exceed the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Conclusion:

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

Tina Fan
Approved Signatory
Test Results:

Test Part Description:

<table>
<thead>
<tr>
<th>Specimen No.</th>
<th>SGS Sample ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SN1</td>
<td>SZX18-004220.004</td>
<td>Silvery metal wire w/ white powder</td>
</tr>
</tbody>
</table>

Remarks:

1. 1 mg/kg = 1 ppm = 0.0001%
2. MDL = Method Detection Limit
3. ND = Not Detected (< MDL)
4. "-" = Not Regulated


<table>
<thead>
<tr>
<th>Test Item(s)</th>
<th>Limit</th>
<th>Unit</th>
<th>MDL</th>
<th>ND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (Cd)</td>
<td>100 mg/kg</td>
<td>2</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>1,000 mg/kg</td>
<td>2</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>1,000 mg/kg</td>
<td>2</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Hexavalent Chromium (Cr(VI))</td>
<td>1,000 mg/kg</td>
<td>8</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Sum of PBBs</td>
<td>1,000 mg/kg</td>
<td>-</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Monobromobiphenyl</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Dibromobiphenyl</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Tribromobiphenyl</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Tetrabromobiphenyl</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Pentabromobiphenyl</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Hexabromobiphenyl</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Heptabromobiphenyl</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Octabromobiphenyl</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Nonabromobiphenyl</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Decabromobiphenyl</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Sum of PBDs</td>
<td>1,000 mg/kg</td>
<td>-</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Monobromodiphenyl ether</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Dibromodiphenyl ether</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Tribromodiphenyl ether</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Tetrabromodiphenyl ether</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Pentabromodiphenyl ether</td>
<td>- mg/kg</td>
<td>5</td>
<td>ND</td>
<td></td>
</tr>
</tbody>
</table>
### Notes:

1. The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
2. IEC 62321 series is equivalent to EN 62321 series.
3. On 4 June 2015, Commission Directive (EU) 2015/863 was published in the Official Journal of the European Union (OJEU) to include the phthalates BBP, DBP, DEHP and DIBP into ANNEX II of the RoHS Recast Directive. The new law restricts each phthalate to no more than 0.1% in each homogeneous material of an electrical product.
4. The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.
5. The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021.
6. The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.
ATTACHMENTS

**Pb/Cd/Hg/Cr\(^{6+}\)/PBBs/PBDEs Testing Flow Chart**

1. Name of the person who made testing: Winsen Deng / David Mai / Truly Ren
2. Name of the person in charge of testing: Zoe Luo / Roje Zhou / Muky Tong
3. These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr\(^{6+}\) and PBBs/PBDEs test method excluded).

![Flow Chart Image]

**Sample Preparation**

**Sample Measurement**

- **Pb/Cd/Hg**
  - Acid digestion with microwave/hotplate
  - Filtration
  - Solution
  - 1) Alkali Fusion / Dry Ashing
  - 2) Acid to dissolve
  - ICP-OES/AAS
  - DATA

- **PBBs/PBDEs**
  - Sample solvent extraction
  - Concentration/Dilution of extraction solution
  - Filtration
  - Digesting at 60°C by ultrasonication
  - Separating to get aqueous phase
  - Adding 1,5-diphenylcarbazide for color development
  - UV-Vis
  - DATA

- **Cr\(^{6+}\)**
  - Nonmetallic material
  - Dissolving by ultrasonication
  - Digesting at 150~160°C
  - Separating to get aqueous phase
  - Adding 1,5-diphenylcarbazide for color development
  - UV-Vis
  - DATA
Test Report

No. SZXEC1800422005  Date: 03 Apr 2018  Page 5 of 5

Sample photo:

SGS authenticate the photo on original report only

*** End of Report ***