# Test Report



**Applicant:** Mid Ocean Brands B.V.

**Address:** Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.

**Manufacturer:** 117486

**Address:** /

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

**Sample Name:** Bracelet charging cable, Keyring loop charging cable

**Sample Model:** MO2646, MO2647

**Sample Received Date:** Jul. 16, 2025

**Testing Period:** Jul. 16, 2025 to Jul. 21, 2025

**Test Requested**

As requested by the applicant, refer to attached page(s) for details.

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**Approved by:**

**Tony Qian/Technical Manager**

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# Test Report



**Summary of Test Results:**

| Test Standard | | Conclusion |
|---|---|---|
| RoHS Directive 2011/65/EU and its subsequent amendments Directive (EU) 2015/863 | | |
| 1 | To determine Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs)content by screening test and chemical test. | Pass |
| 2 | To determine Phthalates (DBP, BBP, DEHP, DIBP) content by chemical test. | Pass |

# Test Report



**Test Results:**

**(1)XRF Test Result:**

| No. | XRF Result(mg/kg) | | | | | Chemical Test (mg/kg) | Conclusion |
|---|---|---|---|---|---|---|---|
| | Pb | Cd | Hg | Cr | Br | | |
| 1 | BL | BL | BL | BL | -- | -- | Pass |
| 2 | BL | BL | BL | BL | -- | -- | Pass |
| 3 | BL | BL | BL | BL | -- | -- | Pass |
| 4 | BL | BL | BL | BL | -- | -- | Pass |
| 5 | BL | BL | BL | BL | BL | -- | Pass |
| 6 | BL | BL | BL | BL | BL | -- | Pass |
| 7 | BL | BL | BL | X | -- | CrVl: Negative | Pass |
| 8 | BL | BL | BL | BL | BL | -- | Pass |
| 9 | BL | BL | BL | BL | BL | -- | Pass |
| 10 | BL | BL | BL | BL | BL | -- | Pass |
| 11 | BL | BL | BL | BL | BL | -- | Pass |
| 12 | BL | BL | BL | BL | BL | -- | Pass |
| 13 | BL | BL | BL | BL | BL | -- | Pass |
| 14 | BL | BL | BL | BL | BL | -- | Pass |
| 15 | BL | BL | BL | BL | BL | -- | Pass |
| 16 | BL | BL | BL | BL | BL | -- | Pass |
| 17 | BL | BL | BL | BL | BL | -- | Pass |
| 18 | BL | BL | BL | BL | X | PBBs/PBDEs:N.D. | Pass |
| 19 | BL | BL | BL | BL | X | PBBs/PBDEs:N.D. | Pass |
| 20 | BL | BL | BL | X | -- | CrVl: Negative | Pass |
| 21 | BL | BL | BL | X | -- | CrVl: Negative | Pass |
| 22 | BL | BL | BL | BL | BL | -- | Pass |
| 23 | BL | BL | BL | BL | BL | -- | Pass |

**Remark:** 1.It is the result on total Br while test item on restricted substances in PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).

2.Screening test by XRF spectroscopy. XRF screening limits in mg/kg for regulated elements according to IEC 62321-3-1: 2013Annex A.

| Element | Polymer Material | Metallic Material | Composite Material |
|---|---|---|---|
| Pb | BL≤700-3σ≤X＜1300+3σ≤OL | BL≤700-3σ≤X＜1300+3σ≤OL | BL≤500-3σ≤X＜1500+3σ≤OL |
| Cd | BL≤70-3σ≤X＜130+3σ≤OL | BL≤70-3σ≤X＜130+3σ≤OL | LOD＜X＜150+3σ≤OL |
| Hg | BL≤700-3σ≤X＜1300+3σ≤OL | BL≤700-3σ≤X＜1300+3σ≤OL | BL≤500-3σ≤X＜1500+3σ≤OL |
| Cr | BL≤700-3σ＜X | BL≤700-3σ＜X | BL≤500-3σ＜X |
| Br | BL≤300-3σ＜X | -- | BL≤250-3σ＜X |

**XRF Detection Limits in mg/kg for Regulated Elements in Various Material**

| Element | Polymer Material | Metallic Material | Composite Material |
|---|---|---|---|
| Pb | 10 | 50 | 50 |
| Cd | 10 | 50 | 50 |
| Hg | 10 | 50 | 50 |
| Cr | 10 | 50 | 50 |
| Br | 10 | 50 | 50 |

**Note:** 1.BL = Under the XRF screening limit

2.OL = Future chemical test will be conducted while result is above the screening limit

3.X =The symbol“X”marks the region where further investigation in necessary

4.3σ=The reproducibility of analytical instruments

5.LOD=Detection limit

**(2)Wet Chemical Test**

| Test Item(s) | Test Method/ Test Equipment | Unit | Limit | MDL |
|---|---|---|---|---|
| Cadmium(Cd) | IEC 62321-5:2013, ICP-OES | mg/kg | 100 | 2 |
| Lead(Pb) | IEC 62321-5:2013, ICP-OES | mg/kg | 1000 | 2 |
| Mercury(Hg) | IEC 62321-4:2013+AMD1:2017, ICP-OES | mg/kg | 1000 | 2 |

| | | | | |
|---|---|---|---|---|
| Hexavalent Chromium(CrVI) (Metal) | IEC 62321-7-1:2015, UV-Vis | μg/cm$^2$ | 0.13 | 0.1 |
| Hexavalent Chromium(CrVI) (Nonmetal) | IEC 62321-7-2:2017, UV-Vis | mg/kg | 1000 | 8 |
| PBBs (Next form) | IEC 62321-6:2015, GC-MS | mg/kg | 1000 | 5 |
| PBDEs (Next form) | IEC 62321-6:2015, GC-MS | mg/kg | 1000 | 5 |
| Dibutyl Phthalate(DBP) | IEC 62321-8:2017, GC-MS | mg/kg | 1000 | 30 |
| Butyl benzyl phthalate (BBP) | IEC 62321-8:2017, GC-MS | mg/kg | 1000 | 30 |
| Di-(2-ethylhexyl) Phthalate(DEHP) | IEC 62321-8:2017, GC-MS | mg/kg | 1000 | 30 |
| Diisobutyl phthalate (DIBP) | IEC 62321-8:2017, GC-MS | mg/kg | 1000 | 30 |

| **PBBs** | | **PBDEs** | |
|---|---|---|---|
| Monobromobiphenyl | Hexabromobiphenyl | Monobromodiphenyl ether | Hexabromodiphenyl ether |
| Dibromobiphenyl | Heptabromobiphenyl | Dibromodiphenyl ether | Heptabromodiphenyl ether |
| Tribromobiphenyl | Octabromobiphenyl | Tribromodiphenyl ether | Octabromodiphenyl ether |
| Tetrabromobiphenyl | Nonabromobiphenyl | Tetrabromodiphenyl ether | Nonabromodiphenyl ether |
| Pentabromobiphenyl | Decabromobiphenyl | Pentabromodiphenyl ether | Decabromodiphenyl ether |

**Note:**

1. mg/kg= ppm=0.0001%
2. N.D.= Not Detected(<MDL)
3. MDL = Method Detection Limit
4. -- = No Testing
5. When Cr (VI) in a sample is detected below the 0.10 μg/cm$^2$ LOQ (limit of quantification), the sample is considered to be negative for Cr (VI). Since Cr (VI) may not be uniformly distributed in the coating even within the same sample batch, a "grey zone" between 0.10 μg/cm$^2$ and 0.13 μg/cm$^2$ has been established as "inconclusive" to reduce inconsistent results due to unavoidable coating variations. In this case, additional testing may be necessary to confirm the presence of Cr (VI). When Cr (VI) is detected above 0.13 μg/cm$^2$, the sample is considered to be positive for the presence of Cr (VI) in the coating layer. Unavoidable coating variations may influence the determination 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.

**(3)Phthalate Test Result:**

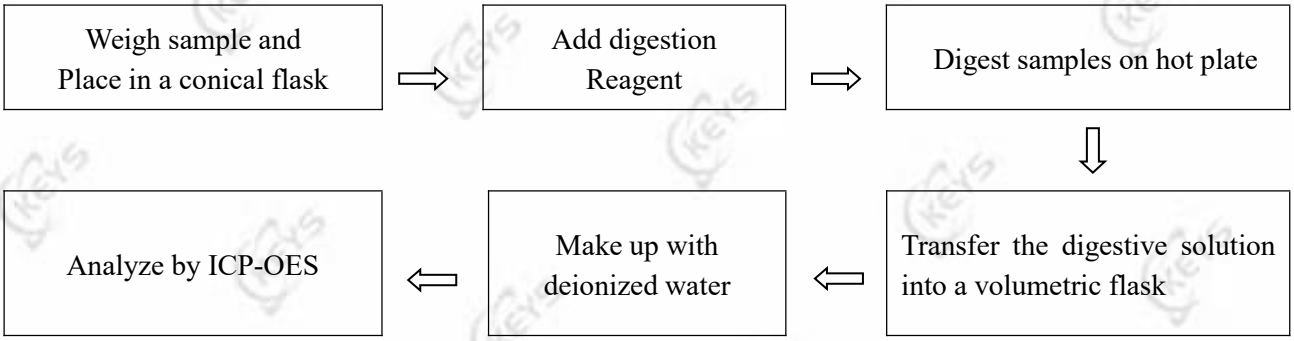
| Test No. | Test Item(s) | | | | Conclusion |
|---|---|---|---|---|---|
| | Dibutyl Phthalate (DBP) | Butyl benzyl phthalate (BBP) | Di-(2-ethylhexyl) Phthalate (DEHP) | Diisobutyl phthalate (DIBP) | |
| 5 | N.D. | N.D. | N.D. | N.D. | Pass |
| 6 | N.D. | N.D. | N.D. | N.D. | Pass |
| 8 | N.D. | N.D. | N.D. | N.D. | Pass |
| 9 | N.D. | N.D. | N.D. | N.D. | Pass |
| 10 | N.D. | N.D. | N.D. | N.D. | Pass |
| 11 | N.D. | N.D. | N.D. | N.D. | Pass |
| 12 | N.D. | N.D. | N.D. | N.D. | Pass |
| 13 | N.D. | N.D. | N.D. | N.D. | Pass |
| 14 | N.D. | N.D. | N.D. | N.D. | Pass |
| 15 | N.D. | N.D. | N.D. | N.D. | Pass |
| 16 | N.D. | N.D. | N.D. | N.D. | Pass |
| 17 | N.D. | N.D. | N.D. | N.D. | Pass |
| 18 | N.D. | N.D. | N.D. | N.D. | Pass |
| 19 | N.D. | N.D. | N.D. | N.D. | Pass |
| 22 | N.D. | N.D. | N.D. | N.D. | Pass |
| 23 | N.D. | N.D. | N.D. | N.D. | Pass |

**Note:** 1. mg/kg= ppm=0.0001%

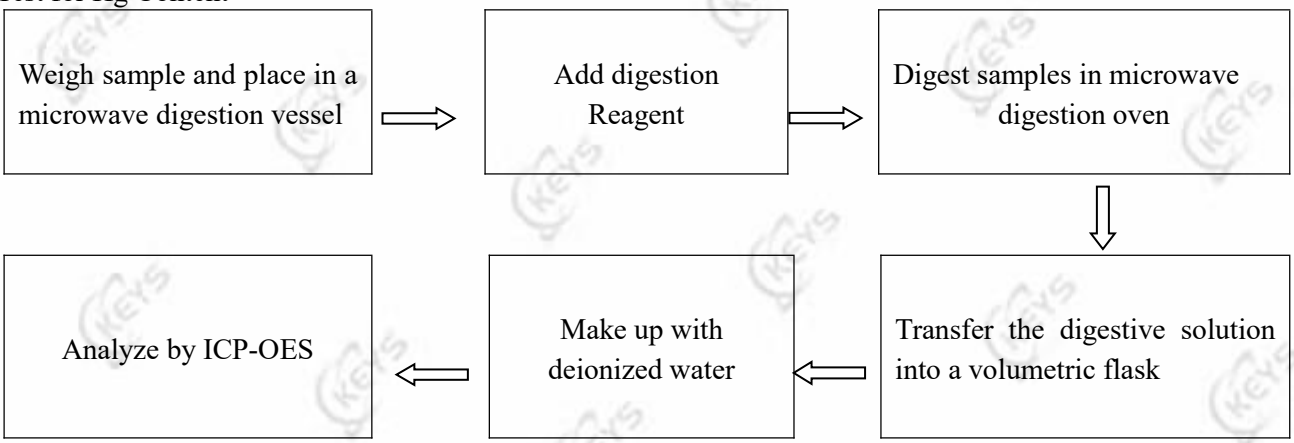
2. N.D.= Not Detected(<MDL)

**Test Process:**

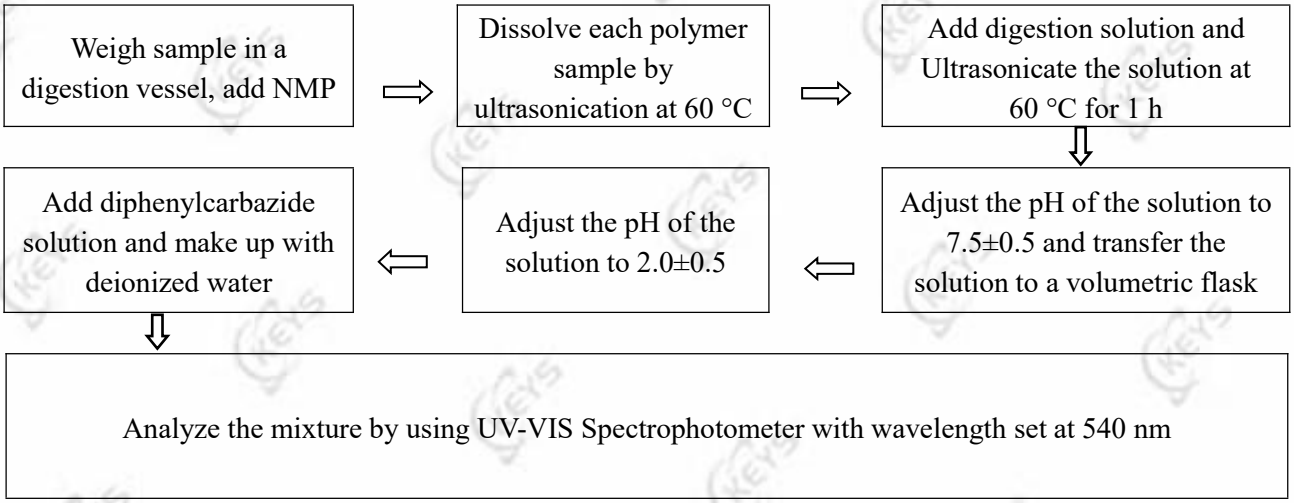
1. Test for Cd/Pb Content



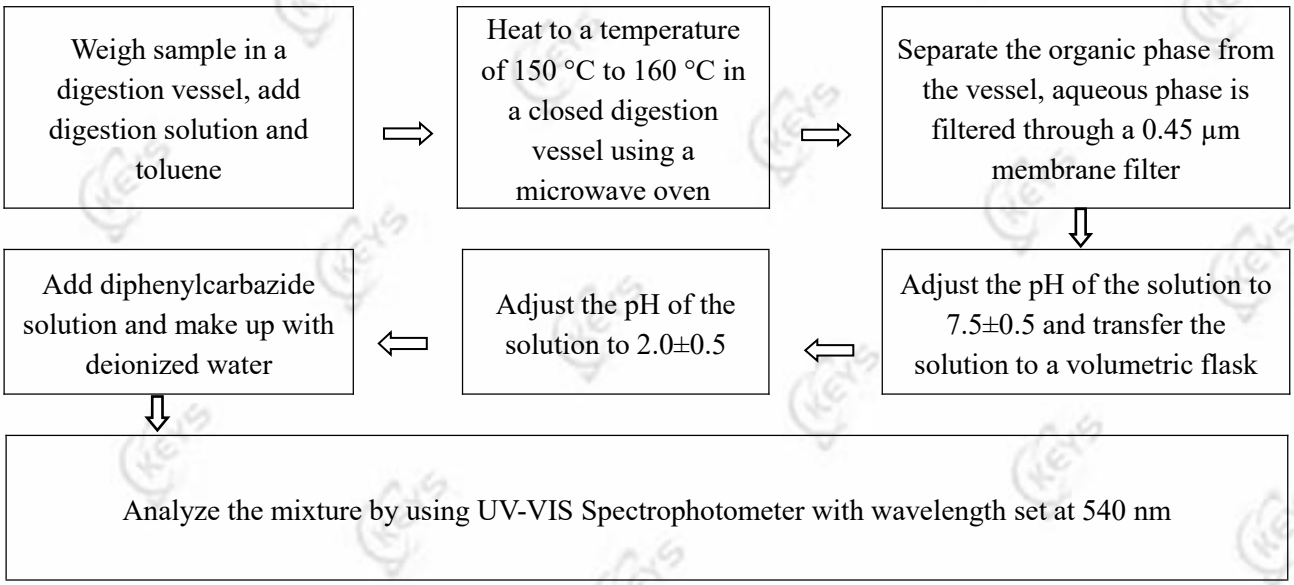

2. Test for Hg Content



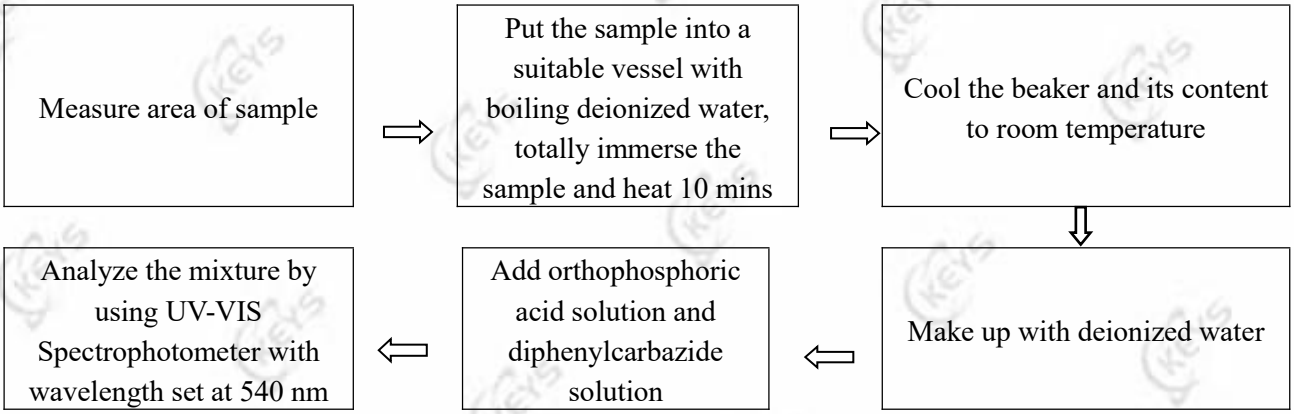
3.Soluble polymers：



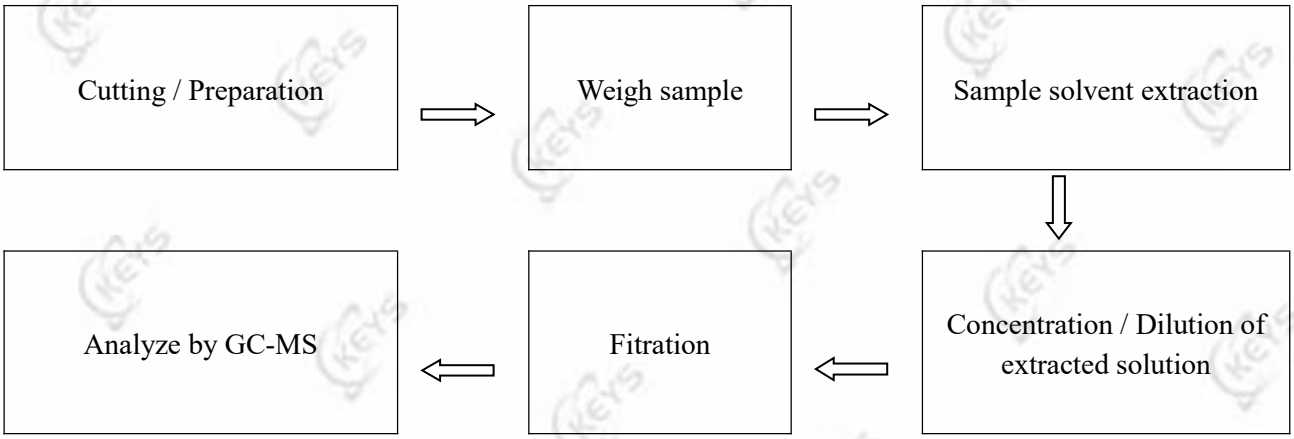

Insoluble/unknown polymers and electronics without Sb



Metal material




4. Test for DBP, BBP, DEHP, DIBP, PBB, PBDE Content



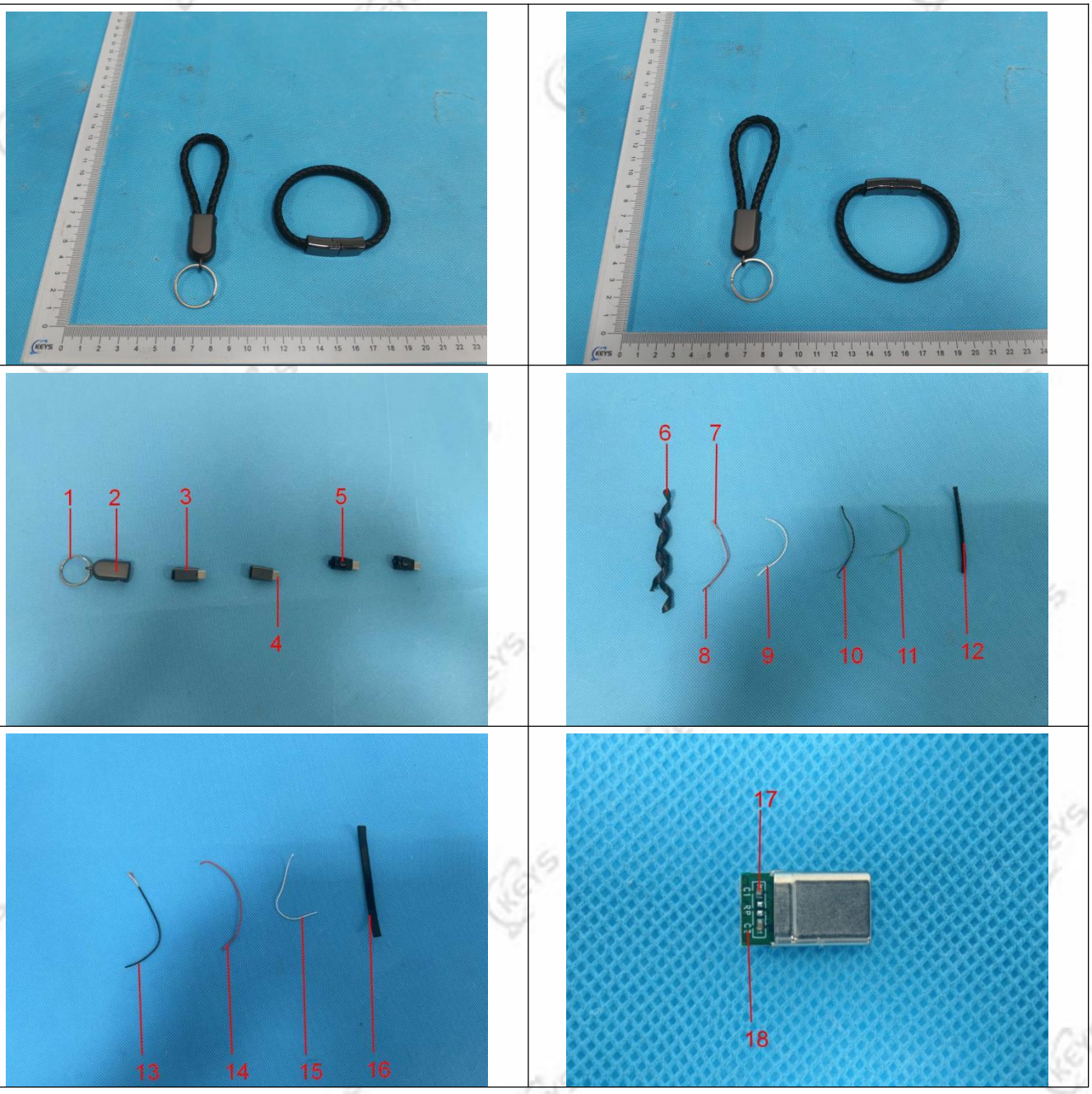
# Test Report

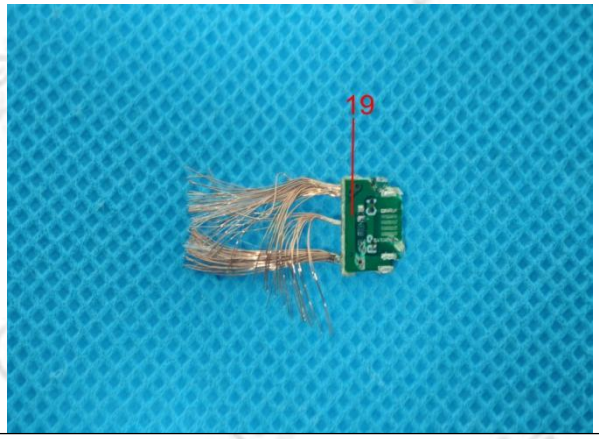


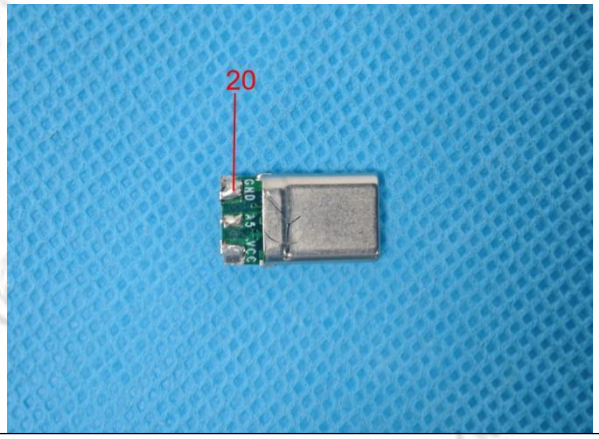
**Sample Description:**

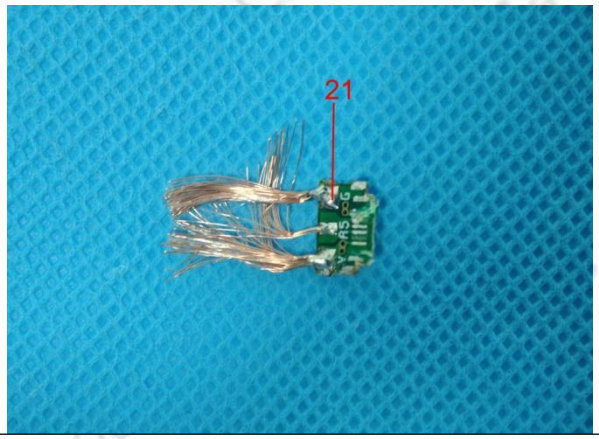
| No. | Description |
|---|---|
| 1 | Silvery metal ring |
| 2 | Grey metal casing |
| 3 | Silver-gray metal fasteners |
| 4 | Silvery metal type-C port |
| 5 | Black plastic fasteners |
| 6 | Black PU |
| 7 | Copper-colored metal wire core |
| 8 | Red plastic wire skin |
| 9 | White plastic wire skin |
| 10 | Black plastic wire skin |
| 11 | Green plastic wire skin |
| 12 | Black plastic wire skin |
| 13 | Black plastic wire skin |
| 14 | Red plastic wire skin |
| 15 | White plastic wire skin |
| 16 | Black plastic wire skin |
| 17 | Brown capacitor |
| 18 | Green PCB |
| 19 | Green PCB |
| 20 | Silvery metal solder |
| 21 | Silvery metal solder |
| 22 | White plastic fixed |
| 23 | Black plastic interface fixed |

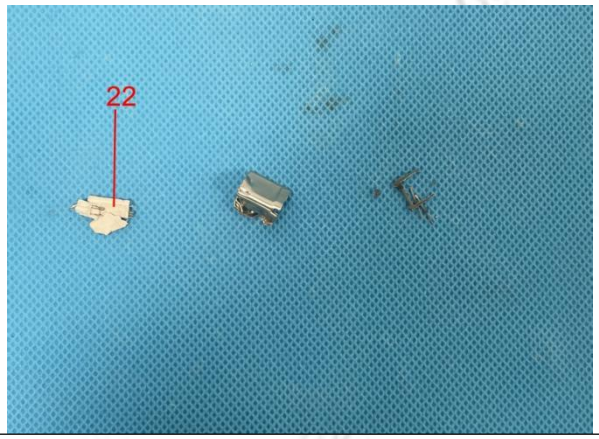
**Photograph(s) of Sample：**

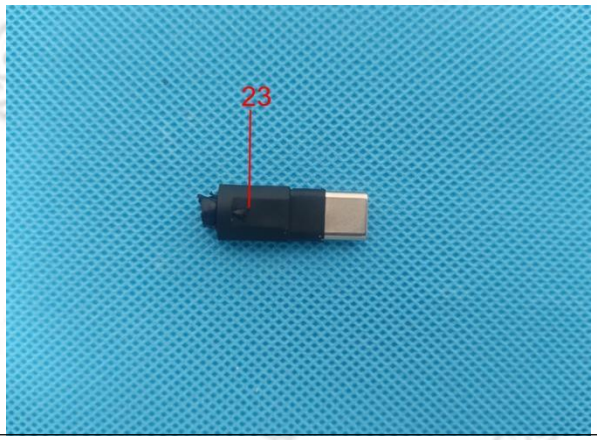


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