(No.): ETR24700771 (Date): 12-Jul-2024 (Page): 1 of 24

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

(The following sample(s) was/were submitted and identified by the applicant as)

| | |
|---|---|
| BASIC INFORMATION | |
| Type of Product | DIP ECD |
| Supplier Company Name | EVERLIGHT |
| Address | NO.6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN |
| Tel / Fax / Email | TEL:886-2685-6688 |
| | FAX:886-2685-6699 |
| | E-MAIL: lindawang@everlight.com |
| Contact Person | LI LING WANG |
| EVERLIGHT REPORT NO | DIP ECD SERIES ECD04 SERIES<br>Sampling Product : ECD04T1520F/TB-SGS-12-Jul-2024 |
| PRODUCT INFORMATION | |
| Product/component Sample description | Opto–Sensor |
| Quantity (numbers or weight) | 0.4909 g |
| EVERLIGHT P/N | DIP ECD SERIES ECD04 SERIES<br>Sampling Product : ECD04T1520F/TB |
| Product Lot No | ZS24032119-001 |
| Country of Origin | China |
| TEST INFORMATION | |
| Sample preparation | CUTTING |
| Test Method | RoHS: IEC 62321, Halogen: BS EN 14582 |
| MDL | Cd, Pb, Hg: 2 mg/kg, PBBs/PBDEs: 5 mg/kg, Halogen: 50 mg/kg |

(Sample Submitted By) : (EVERLIGHT ELECTRONICS CO., LTD.)

==========

(Sample Receiving Date) : 03-Jul-2024
(Testing Period) : 03-Jul-2024 to 12-Jul-2024

(Test Results) : (Please refer to following pages).

PIN CODE: 0070EF4E

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

(Test Requested) : (1) RoHS 2011/65/EU Annex II (EU) 2015/863 , DBP, BBP, DEHP, DIBP (As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).)

(2) PAHs (As specified by client, to test PAHs and other item(s).)

(Conclusion) : (1) , DBP, BBP, DEHP, DIBP RoHS 2011/65/EU Annex II (EU) 2015/863 (Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.)

(2) (AfPS) GS PAHs 3 (Based upon the performed tests on the submitted sample(s), the test results of PAHs (15 items) comply with the limits of PAHs requirement (Category 3) Other consumer products as set by German Committee on Product Safety (AfPS) GS PAHs.)

(Test Part Description)

No.1 : (BLACK PLASTIC)
No.2 : (BODY)
No.3 : (TRANSPARENT PLASTIC)
No.4 : (PLATING LAYER OF SILVER COLORED METAL PIN)
No.5 : (BASE MATERIAL OF SILVER COLORED METAL PIN)
No.6 : ( ) (SILVER COLORED METAL PIN (INCLUDING THE PLATING LAYER))

(Test Results)

| (Test Items) | (Method) | (Unit) | MDL | (Result) | | | (Limit) |
|---|---|---|---|---|---|---|---|
| | | | | No.1 | No.2 | No.3 | |
| (Cd) (Cadmium (Cd)) | IEC 62321-5: 2013<br><br>(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.) | mg/kg | 2 | n.d. | n.d. | n.d. | 100 |
| (Pb) (Lead (Pb)) | | mg/kg | 2 | n.d. | n.d. | n.d. | 1000 |

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

| (Test Items) | (Method) | (Unit) | MDL | (Result) | | | (Limit) |
|---|---|---|---|---|---|---|---|
| | | | | No.1 | No.2 | No.3 | |
| (Hg) (Mercury (Hg)) | IEC 62321-4: 2013+ AMD1: 2017 (With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.) | mg/kg | 2 | n.d. | n.d. | n.d. | 1000 |
| Cr(VI) (Hexavalent Chromium Cr(VI)) | IEC 62321-7-2: 2017 - (With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.) | mg/kg | 8 | n.d. | n.d. | n.d. | 1000 |
| (Monobromobiphenyl) | IEC 62321-6: 2015 / (With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.) | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Dibromobiphenyl) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Tribromobiphenyl) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Tetrabromobiphenyl) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Pentabromobiphenyl) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Hexabromobiphenyl) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Heptabromobiphenyl) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Octabromobiphenyl) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Nonabromobiphenyl) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Decabromobiphenyl) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Sum of PBBs) | | mg/kg | - | n.d. | n.d. | n.d. | 1000 |
| (Monobromodiphenyl ether) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Dibromodiphenyl ether) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Tribromodiphenyl ether) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Tetrabromodiphenyl ether) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Pentabromodiphenyl ether) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Hexabromodiphenyl ether) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Heptabromodiphenyl ether) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Octabromodiphenyl ether) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Nonabromodiphenyl ether) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Decabromodiphenyl ether) | | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (Sum of PBDEs) | | mg/kg | - | n.d. | n.d. | n.d. | 1000 |

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

| | | MDL | | | | |
|---|---|---|---|---|---|---|
| | (Method) | (Unit) | | | | (Limit) |
| | | | No.1 | No.2 | No.3 | |
| | | mg/kg | | | | |

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

| (Test Items) | (Method) | (Unit) | MDL | (Result) | | | (Limit) |
|---|---|---|---|---|---|---|---|
| | | | | No.1 | No.2 | No.3 | |
| (DNNP) (Di-n-nonyl phthalate (DNNP)) (CAS No.: 84-76-4) | IEC 62321-8: 2017 / (With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.) | mg/kg | 50 | n.d. | n.d. | n.d. | - |
| (HBCDD) (α- HBCDD, β- HBCDD, γ- HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8)) | IEC 62321: 2008 / (With reference to IEC 62321: 2008, analysis was performed by GC/MS.) | mg/kg | 5 | n.d. | n.d. | n.d. | - |
| (F) (Fluorine (F)) (CAS No.: 14762-94-8) | BS EN 14582: 2016 (With reference to BS EN 14582: 2016, analysis was performed by IC.) | mg/kg | 50 | 70.1 | n.d. | n.d. | - |
| (Cl) (Chlorine (Cl)) (CAS No.: 22537-15-1) | | mg/kg | 50 | 75.9 | n.d. | n.d. | - |
| (Br) (Bromine (Br)) (CAS No.: 10097-32-2) | | mg/kg | 50 | n.d. | n.d. | n.d. | - |
| (I) (Iodine (I)) (CAS No.: 14362-44-8) | | mg/kg | 50 | n.d. | n.d. | n.d. | - |
| (PFOS and its salts) (CAS No.: 1763-23-1 and its salts) | CEN/TS 15968: 2010 (With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.) | mg/kg | 0.01 | n.d. | n.d. | n.d. | - |
| (PFOA and its salts) (CAS No.: 335-67-1 and its salts) | | mg/kg | 0.01 | n.d. | n.d. | n.d. | - |
| (Be) (Beryllium (Be)) (CAS No.: 7440-41-7) | US EPA 3052: 1996 (With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.) | mg/kg | 2 | n.d. | n.d. | n.d. | - |

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

| (Test Items) | (Method) | (Unit) | MDL | No.1 | No.2 | No.3 | (Limit) |
|---|---|---|---|---|---|---|---|
| | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| | AfPS GS 2019:01 PAK / (With reference to AfPS GS 2019:01 PAK, analysis was performed | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| (Anthracene) (CAS No.: 120-12-7) | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| (Fluoranthene) (CAS No.: 206-44-0) | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| (Pyrene) (CAS No.: 129-00-0) | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| (Naphthalene) (CAS No.: 91-20-3) | | mg/kg | 0.2 | n.d. | n.d. | n.d. | Δ |
| 15 PAHs) | (Sum of 15 | mg/kg | - | n.d. | n.d. | n.d. | Δ |

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

| (Test Items) | (Method) | (Unit) | MDL | (Result) | | | (Limit) |
|---|---|---|---|---|---|---|---|
| | | | | No.4 | No.5 | No.6 | |
| (Cd) (Cadmium (Cd)) | IEC 62321-5: 2013 (IEC 62321-5: 2013 application of modified digestion by surface etching, analysis was performed by ICP-OES.) | mg/kg | 2 | n.d. | --- | --- | 100 |
| (Pb) (Lead (Pb)) | IEC 62321-5: 2013 (IEC 62321-5: 2013 application of modified digestion by surface etching, analysis was performed by ICP-OES.) | mg/kg | 2 | 38.7 | --- | --- | 1000 |
| (Hg) (Mercury (Hg)) | IEC 62321-4: 2013+ AMD1: 2017 (IEC 62321-4: 2013+AMD1: 2017 application of modified digestion by surface etching, analysis was performed by ICP-OES.) | mg/kg | 2 | n.d. | --- | --- | 1000 |
| (Cd) (Cadmium (Cd)) | IEC 62321-5: 2013 (With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.) | mg/kg | 2 | --- | n.d. | --- | 100 |
| (Pb) (Lead (Pb)) | IEC 62321-5: 2013 (With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.) | mg/kg | 2 | --- | n.d. | --- | 1000 |

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

| (Test Items) | (Method) | (Unit) | MDL | (Result) | | | (Limit) |
|---|---|---|---|---|---|---|---|
| | | | | No.4 | No.5 | No.6 | |
| (Hg) (Mercury (Hg)) | IEC 62321-4: 2013+ AMD1: 2017 (With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.) | mg/kg | 2 | --- | n.d. | --- | 1000 |
| (Hexavalent Chromium) Cr(VI) (#2) | IEC 62321-7-1: 2015 - (With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.) | µg/cm² | 0.1 | n.d. | n.d. | --- | - |
| (Be) (Beryllium (Be)) (CAS No.: 7440-41-7) | US EPA 3050B: 1996 (With reference to US EPA 3050B: 1996, analysis was performed by ICP-OES.) | mg/kg | 2 | --- | --- | n.d. | - |

(Note)

1. mg/kg = ppm 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit ( )
3. n.d. = Not Detected ( ) ; MDL / Less than MDL
4. "-" = Not Regulated ( )
5. "---" = Not Conducted ( )
6. (#2) =
   a. 0.13 µg/cm² . / The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI).
   b. n.d. ( 0.10 µg/cm²) . / The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than 0.10 µg/cm²). The coating is considered a non-Cr(VI) based coating
   c. 0.10 0.13 µg/cm² . / The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.
7. ILAC-G8:09/2019 (w=0)
   (Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.)

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

PAHs Remark

Δ (AfPS): GS PAHs

AfPS (German commission for Product Safety): GS PAHs requirements

| | 1 (Category 1) | 2 (Category 2) | 3 (Category 3) |
|---|---|---|---|
| (Parameter) | ( 30 ) 2009/48/EC 3 (Materials intended to be placed in the mouth, or materials in toys (Directive 2009/48/EC) or articles for children up to 3 years of age with intended long-term skin contact (> 30 seconds)) | 1 30 ( ) (Materials that are not in Category 1, with intended or foreseeable long-term skin contact (> 30 seconds) or short-term repetitive contact with the skin) | 1 2 30 ( )(Materials not covered by Category 1 or 2, with intended or foreseeable short-term skin contact ( 30 seconds)) |

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

PFAS Remark

PFAS PFAS PFAS
PFAS PFAS
( PFAS PFAS )

(The quantitative technology of PFAS is to analyze the specific structure of PFAS substances. However, PFAS acid and its salts with the same carbon number group have the same specific structure that can be identified. The tested results of the analyzed specific structure cannot be distinguished to identify the contribution from PFAS acid or its salts. Therefore, the tested results display the sum of concentrations of PFAS acids and its salts with the same carbon number group. The concentration of PFAS substances in the below table have been included in the tested results, please refer to the table for relevant information: (The listed PFAS substances are examples only, it do not include all PFAS salts with the same carbon number group.))

| (Group Name) | (Substance Name) | CAS No. |
|---|---|---|
| PFOS, & (PFOS, its salts & derivatives) | (Perfluorooctane sulfonates) (PFOS) | 1763-23-1 |
| | (PFOS-K) Potassium perfluorooctanesulfonate (PFOS-K) | 2795-39-3 |
| | (PFOS-Li) Perfluorooctanesulfonic acid, lithium salt (PFOS-Li) | 29457-72-5 |
| | (PFOS-$NH_4$) Perfluorooctanesulfonic acid, ammonium salt (PFOS-$NH_4$) | 29081-56-9 |
| | (PFOS-$NH(OH)_2$) Perfluorooctane sulfonate diethanolamine salt (PFOS-$NH(OH)_2$) | 70225-14-8 |
| | (PFOS-$N(C_2H_5)_4$) Perfluorooctanesulfonic acid,tetraethylammonium salt (PFOS-$N(C_2H_5)_4$) | 56773-42-3 |
| | (PFOS-DDA) N-decyl-N,N-dimethyldecan-1-aminium 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctane-1-sulfonate (PFOS-DDA) | 251099-16-8 |
| | (PFOS-$N(C_4H_9)_4$) TetrabutylAmmonium perfluorooctanesulfonate (PFOS-$N(C_4H_9)_4$) | 111873-33-7 |
| | (POSF) Perfluorooctane sulfonyl fluoride (POSF) | 307-35-7 |

# Test Report

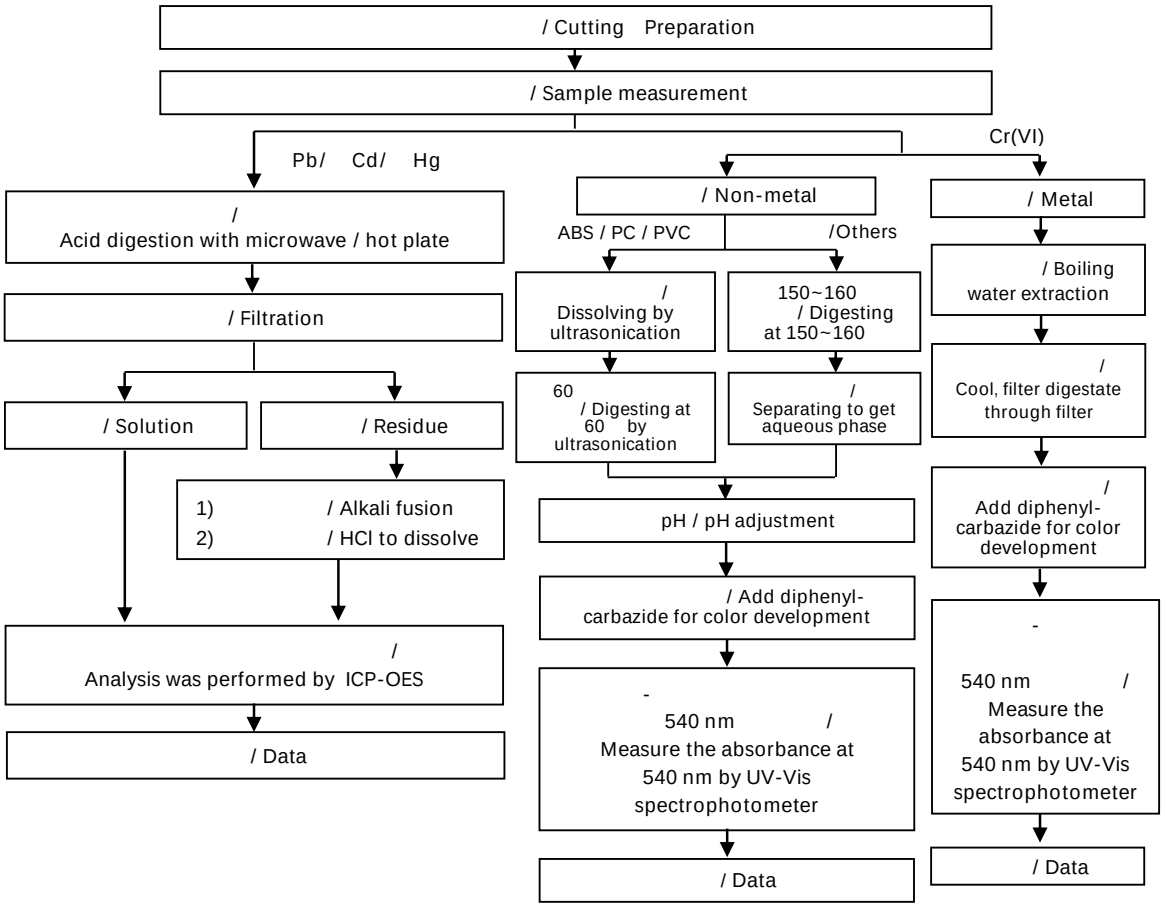
(EVERLIGHT ELECTRONICS CO., LTD.)

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

/ Analytical flow chart of heavy metal

These samples were dissolved totally by pre-conditioning method according to below flow chart.
$Cr^{6+}$ test method excluded



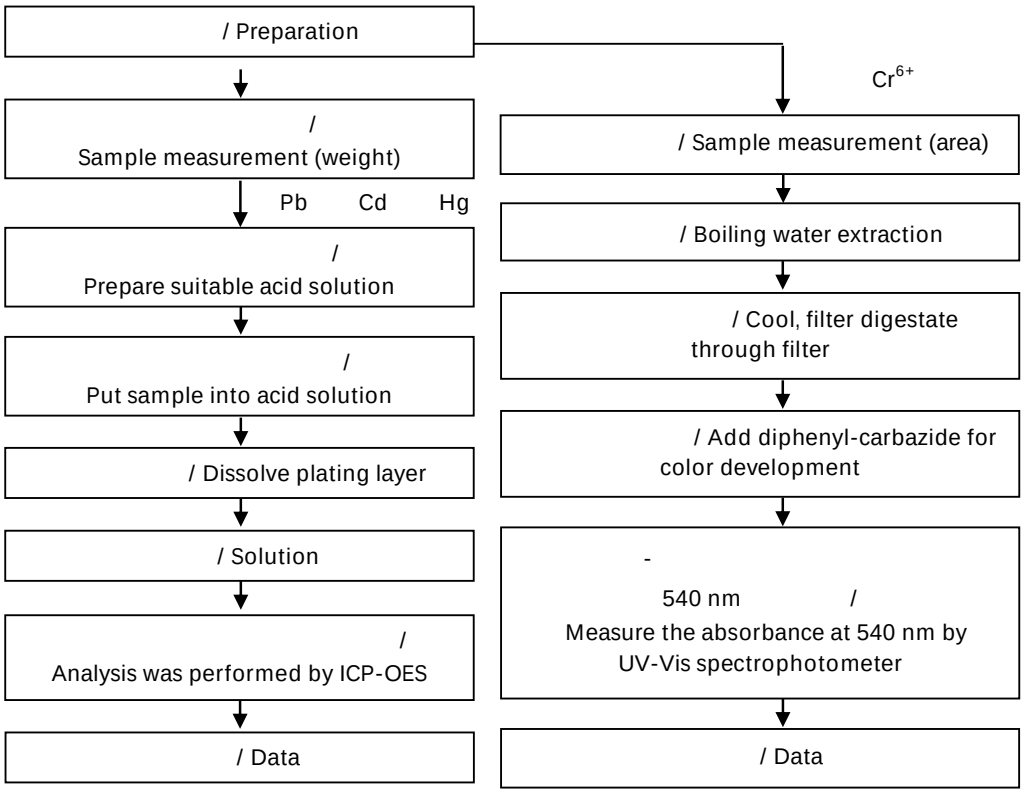
# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

/ Flow chart of stripping method for metal analysis

/ The plating layer of samples were dissolved totally by pre-conditioning method according to below flow chart.

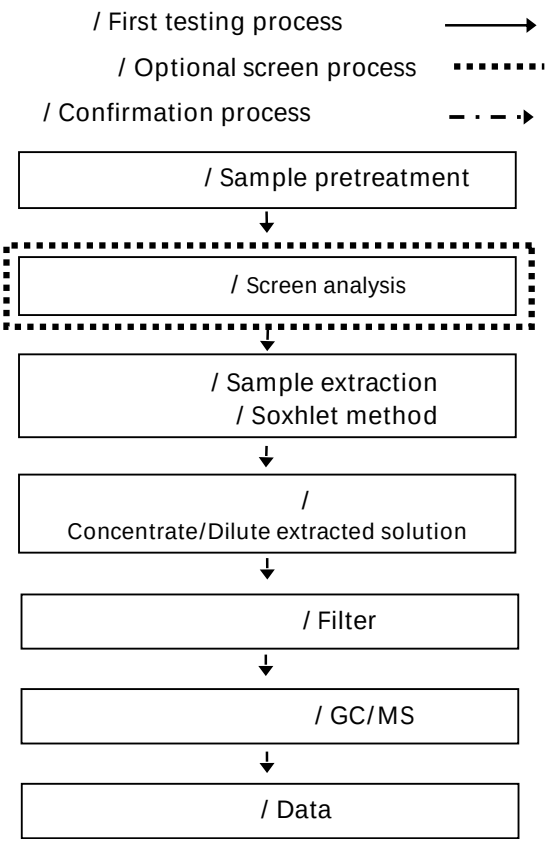
$Cr^{6+}$ test method excluded



# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

/ / Analytical flow chart - PBBs/PBDEs

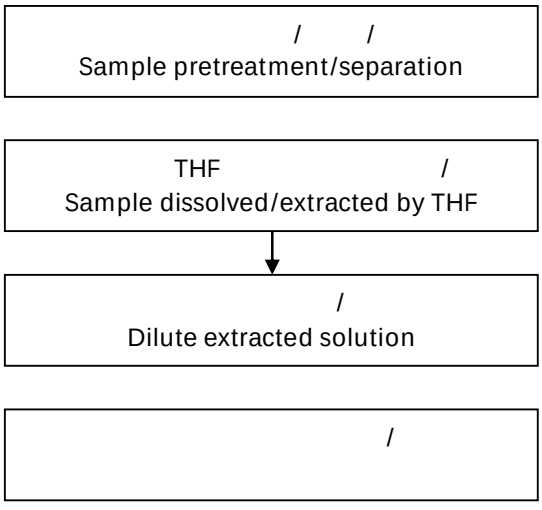


# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

/ Analytical flow chart - Phthalate

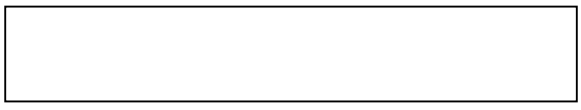
/Test method: IEC 62321-8



# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

/ Analytical flow chart - Halogen



# Test Report

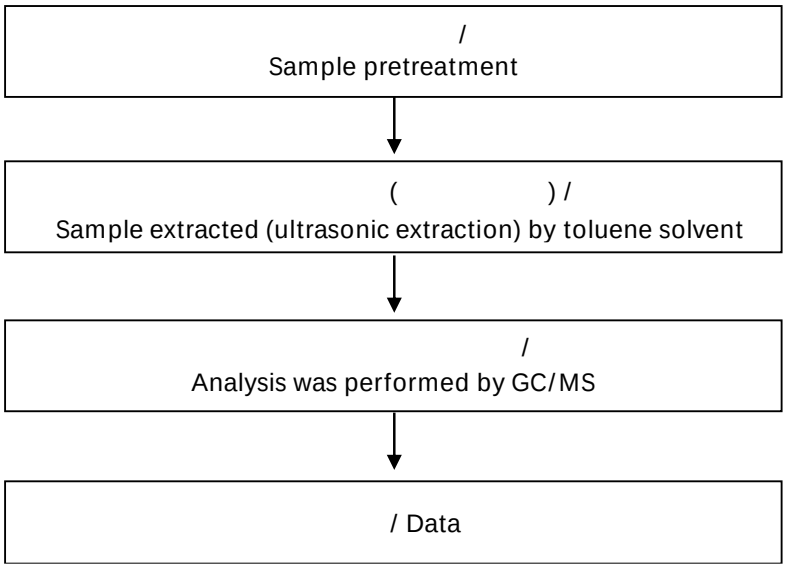
(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

/

Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)

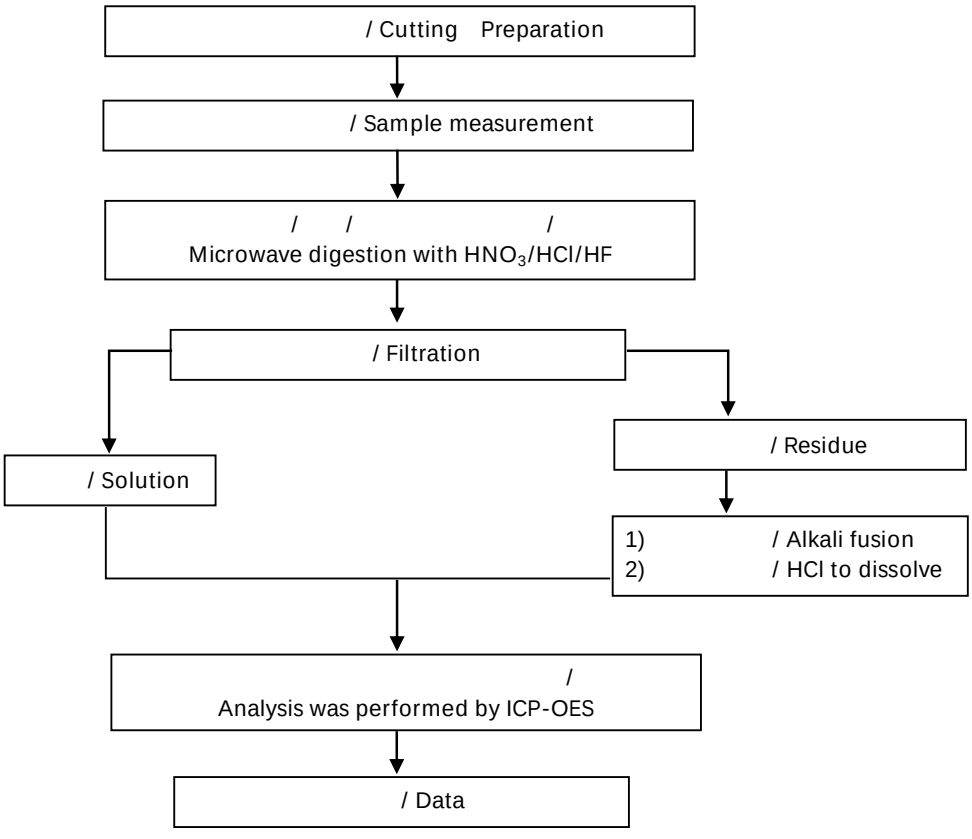


# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

( ) / Analytical flow chart of elements (Heavy metal included)

These samples were dissolved totally by pre-conditioning method according to below flow chart.
/Reference method US EPA 3051A US EPA 3052




* US EPA 3051A / US EPA 3051A method does not add HF.

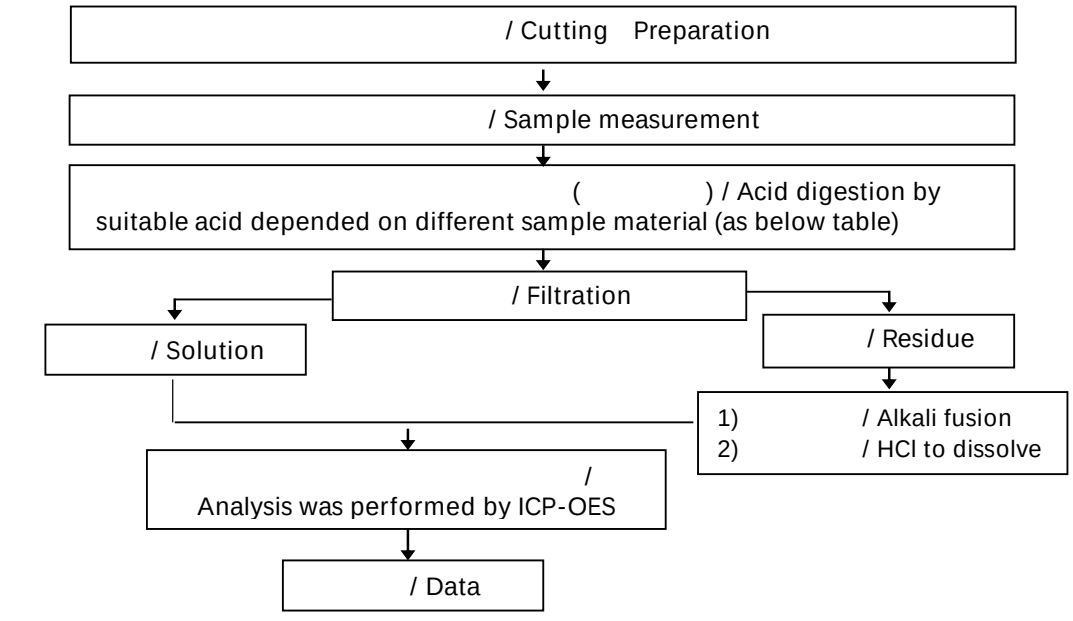
# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

ICP-OES

(Flow chart of digestion for the elements analysis performed by ICP-OES)

/ These samples were dissolved totally by pre-conditioning method according to below flow chart.

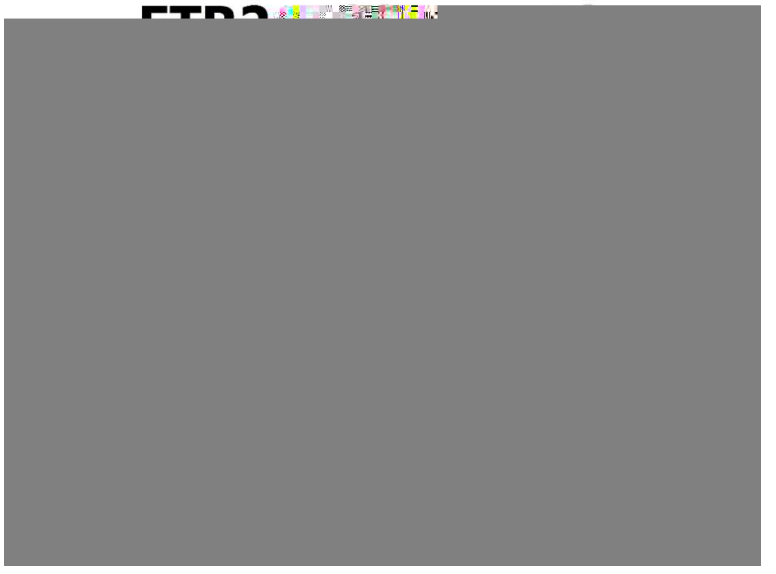


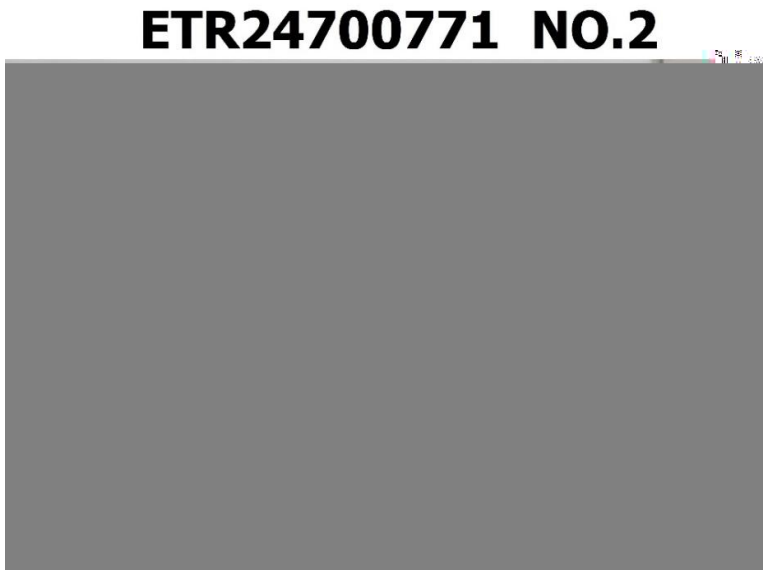

| | |
|---|---|
| , , , / Steel, copper, aluminum, solder | , , , , / Aqua regia, $HNO_3$, HCl, HF, $H_2O_2$ |
| / Glass | , / $HNO_3$,HF |
| , , , / Gold, platinum, palladium, ceramic | / Aqua regia |
| / Silver | / $HNO_3$ |
| / Plastic | , , , / $H_2SO_4$, $H_2O_2$, $HNO_3$, HCl |
| / Others | / Added appropriate reagent to total digestion |

# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

* / . *
(The tested sample / part is marked by an arrow if it's shown on the photo.)





# Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

**ETR24700771 NO.5**

** (End of Report) **