

## Test Report

No.: ETR24700223

Date: 11-Jul-2024

Page: 1 of 13

JIANN WA ELECTRONICS CO., LTD.

NO.844, SEC. 1, GANGBU RD., WUGI DIST., TAICHUNG CITY, TAIWAN, R. O. C.

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

Sample Submitted By : JIANN WA ELECTRONICS CO., LTD.

Sample Name : LED

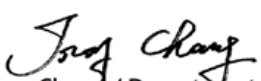
Sample Receiving Date : 01-Jul-2024


Testing Period : 01-Jul-2024 to 11-Jul-2024

**Test Requested** : (1) 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) Please refer to next pages for the other item(s).

**Test Results** : Please refer to following pages.

**Conclusion** : (1) 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.

  
Troy Chang / Department Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory - Taipei



PIN CODE: 9D9A4341

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

# Test Report

No.: ETR24700223

Date: 11-Jul-2024

Page: 2 of 13

JIANN WA ELECTRONICS CO., LTD.

NO.844, SEC. 1, GANGBU RD., WUGI DIST., TAICHUNG CITY, TAIWAN, R. O. C.

## Test Part Description

- No.1 : TRANSPARENT PLASTIC
- No.2 : PLATING LAYER OF SILVER COLORED METAL
- No.3 : BASE MATERIAL OF SILVER COLORED METAL

## Test Result(s)

| Test Item(s)                    | Method  | Unit               | MDL | Result |      |      | Limit |
|---------------------------------|---|--------------------|-----|--------|------|------|-------|
|                                 |   |                    |     | No.1   | No.2 | No.3 |       |
| Cadmium (Cd)                    | With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.   | mg/kg              | 2   | n.d.   | ---  | ---  | 100   |
| Lead (Pb)                       |   | mg/kg              | 2   | n.d.   | ---  | ---  | 1000  |
| Mercury (Hg)                    | 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)      | With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.  | mg/kg              | 8   | n.d.   | ---  | ---  | 1000  |
| Cadmium (Cd)                    | IEC 62321-5: 2013 application of modified digestion by surface etching, analysis was performed by ICP-OES.            | mg/kg              | 2   | ---    | n.d. | ---  | 100   |
| Lead (Pb)                       |   | mg/kg              | 2   | ---    | n.d. | ---  | 1000  |
| Mercury (Hg)                    | 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  |
| Cadmium (Cd)                    | With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.   | mg/kg              | 2   | ---    | ---  | n.d. | 100   |
| Lead (Pb)                       |   | mg/kg              | 2   | ---    | ---  | n.d. | 1000  |
| Mercury (Hg)                    | 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) | With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.  | µg/cm <sup>2</sup> | 0.1 | ---    | n.d. | n.d. | -     |

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

# Test Report

No.: ETR24700223

Date: 11-Jul-2024

Page: 3 of 13

JIANN WA ELECTRONICS CO., LTD.

NO.844, SEC. 1, GANGBU RD., WUGI DIST., TAICHUNG CITY, TAIWAN, R. O. C.

| Test Item(s)             | Method  | Unit  | MDL  | Result |      |      | Limit |
|--------------------------|---|-------|------|--------|------|------|-------|
|                          |   |       |      | No.1   | No.2 | No.3 |       |
| Monobromobiphenyl        | With reference to IEC 62321-6: 2015, analysis was performed by GC/MS. | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Dibromobiphenyl          |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Tribromobiphenyl         |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Tetrabromobiphenyl       |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Pentabromobiphenyl       |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Hexabromobiphenyl        |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Heptabromobiphenyl       |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Octabromobiphenyl        |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Nonabromobiphenyl        |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Decabromobiphenyl        |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| <b>Sum of PBBs</b>       |   | mg/kg | -    | n.d.   | ---  | ---  | 1000  |
| Monobromodiphenyl ether  |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Dibromodiphenyl ether    |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Tribromodiphenyl ether   |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Tetrabromodiphenyl ether |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Pentabromodiphenyl ether |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Hexabromodiphenyl ether  |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Heptabromodiphenyl ether |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Octabromodiphenyl ether  |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Nonabromodiphenyl ether  |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| Decabromodiphenyl ether  |   | mg/kg | 5    | n.d.   | ---  | ---  | -     |
| <b>Sum of PBDEs</b>      | mg/kg   | -     | n.d. | ---    | ---  | 1000 |       |

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

# Test Report

No.: ETR24700223

Date: 11-Jul-2024

Page: 4 of 13

JIANN WA ELECTRONICS CO., LTD.

NO.844, SEC. 1, GANGBU RD., WUGI DIST., TAICHUNG CITY, TAIWAN, R. O. C.

| Test Item(s)   | Method  | Unit  | MDL | Result |      |      | Limit |
|--|---|-------|-----|--------|------|------|-------|
|  |   |       |     | No.1   | No.2 | No.3 |       |
| Butyl benzyl phthalate (BBP)   | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50  | n.d.   | ---  | ---  | 1000  |
| Dibutyl phthalate (DBP)  | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50  | n.d.   | ---  | ---  | 1000  |
| Di-(2-ethylhexyl) phthalate (DEHP)                                       | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50  | n.d.   | ---  | ---  | 1000  |
| Diisobutyl phthalate (DIBP)  | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50  | n.d.   | ---  | ---  | 1000  |
| Diisodecyl phthalate (DIDP) (CAS No.: 26761-40-0, 68515-49-1)            | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50  | n.d.   | ---  | ---  | -     |
| Diisononyl phthalate (DINP) (CAS No.: 28553-12-0, 68515-48-0)            | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50  | n.d.   | ---  | ---  | -     |
| Di-n-octyl phthalate (DNOP) (CAS No.: 117-84-0)                          | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50  | n.d.   | ---  | ---  | -     |
| Medium Chain Chlorinated Paraffins(C14-C17) (MCCP) (CAS No.: 85535-85-9) | With reference to ISO 18219-2: 2021, analysis was performed by GC/MS. | mg/kg | 50  | n.d.   | ---  | ---  | -     |
| Tetrabromobisphenol A (TBBP-A) (CAS No.: 79-94-7)                        | With reference to RSTS-E&E-121, analysis was performed by LC/MS.      | mg/kg | 10  | n.d.   | ---  | ---  | -     |

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

JIANN WA ELECTRONICS CO., LTD.

NO.844, SEC. 1, GANGBU RD., WUGI DIST., TAICHUNG CITY, TAIWAN, R. O. C.

**Note :**

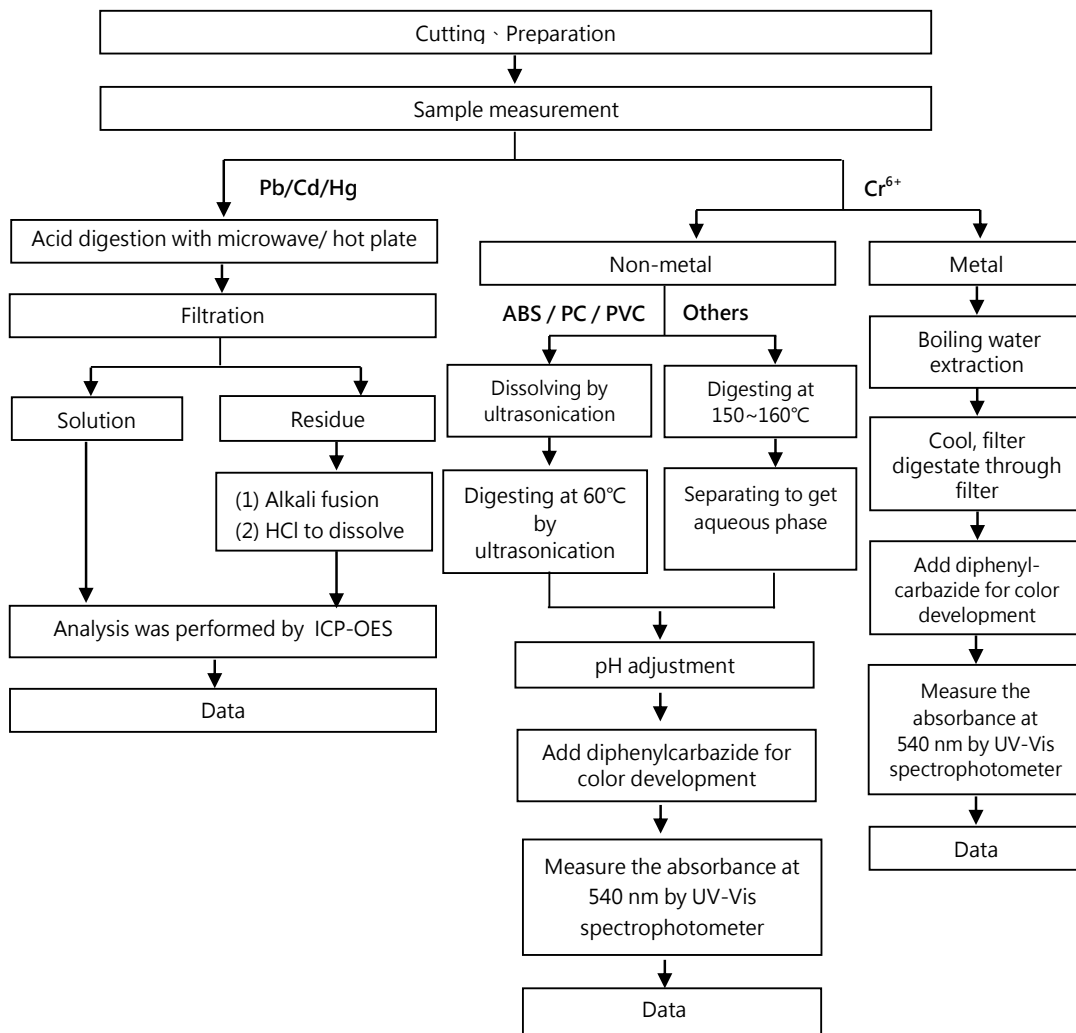
1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)
4. "-" = Not Regulated
5. "---" = Not Conducted
6. (#2) =
  - a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than  $0.13 \mu\text{g}/\text{cm}^2$ . The sample coating is considered to contain Cr(VI).
  - b. The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than  $0.10 \mu\text{g}/\text{cm}^2$ ). The coating is considered a non-Cr(VI) based coating
  - c. The result between  $0.10 \mu\text{g}/\text{cm}^2$  and  $0.13 \mu\text{g}/\text{cm}^2$  is considered to be inconclusive - unavoidable coating variations may influence the determination.
7. 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.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

## Analytical flow chart of heavy metal

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

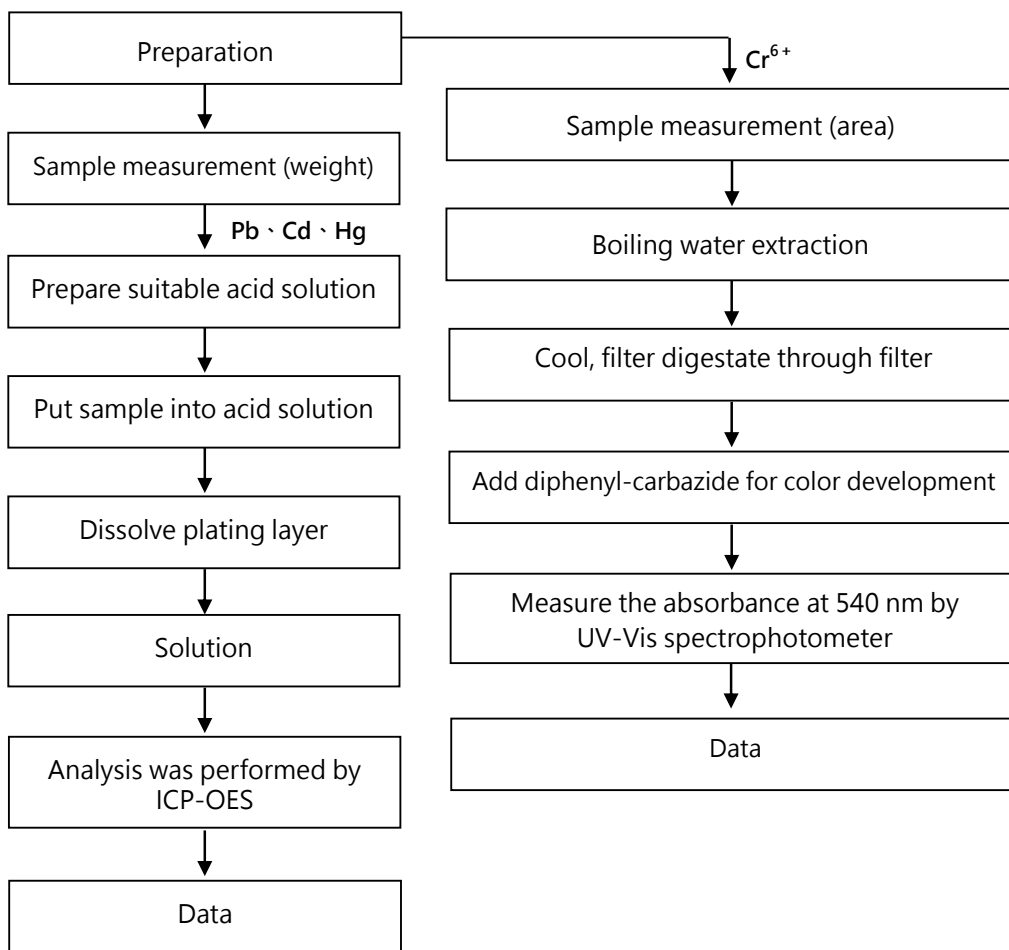
( Cr<sup>6+</sup> test method excluded )



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

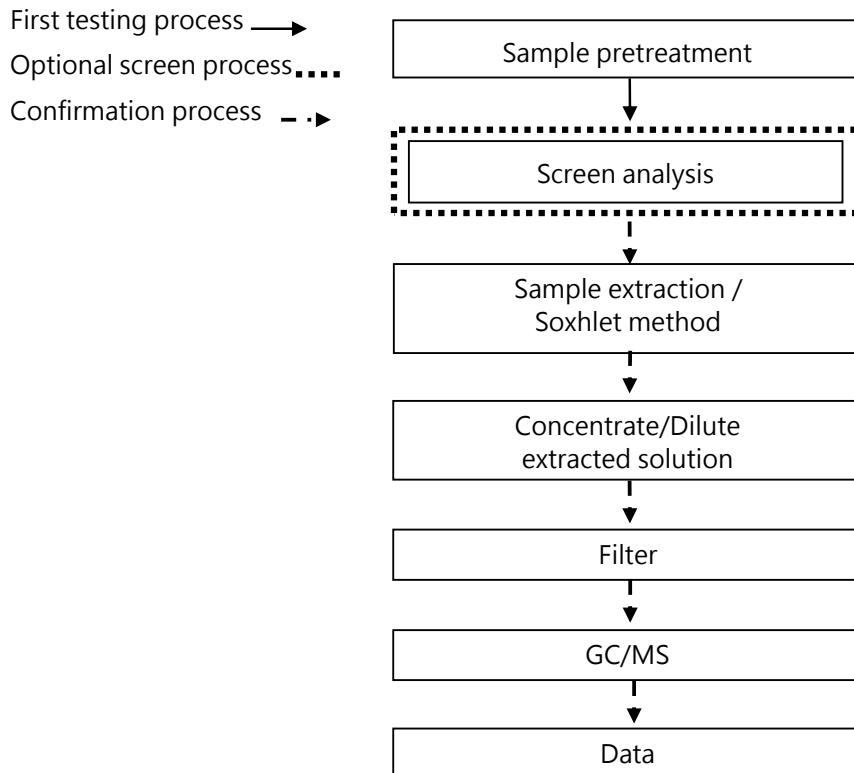
### Flow chart of stripping method for metal analysis

The plating layer of samples were dissolved totally by pre-conditioning method according to below flow chart. ( Cr<sup>6+</sup> test method excluded )



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

### Analytical flow chart – PBBs / PBDEs

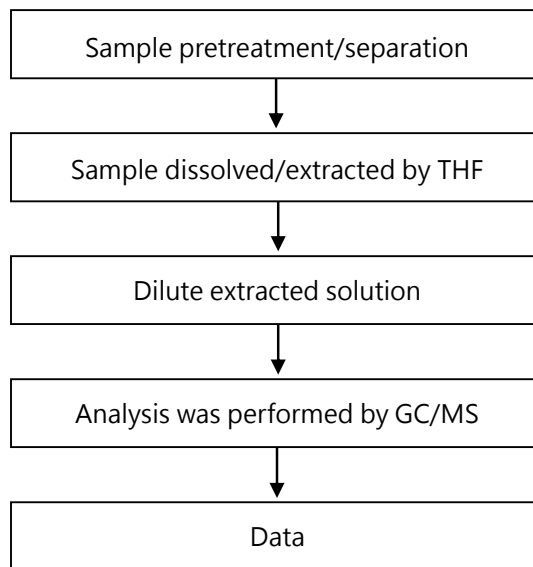


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.



## Analytical flow chart - Phthalate

【 Test method: IEC 62321-8 】



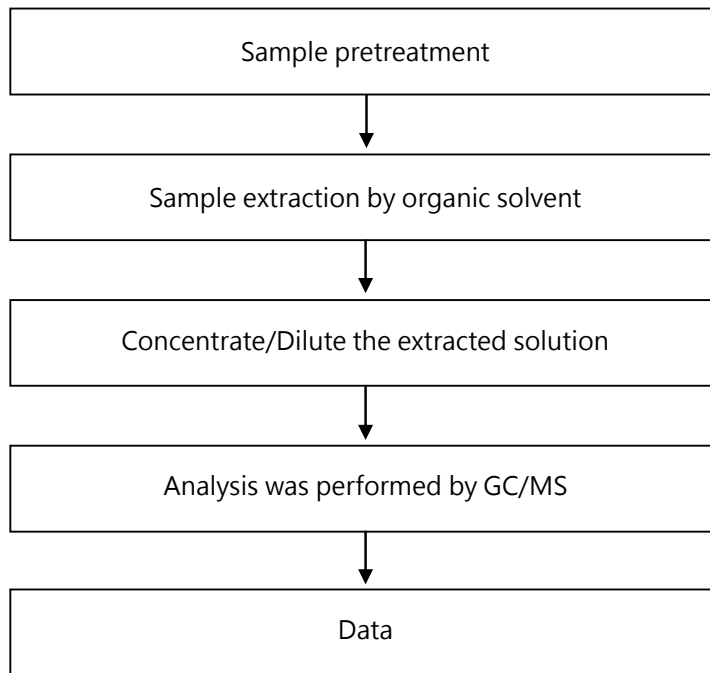
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

JIANN WA ELECTRONICS CO., LTD.

NO.844, SEC. 1, GANGBU RD., WUGI DIST., TAICHUNG CITY, TAIWAN, R. O. C.

### Analytical flow chart

\* Apply to: PCBs, PCNs, PCTs, Mirex, Chlorinated Paraffins, DBBT

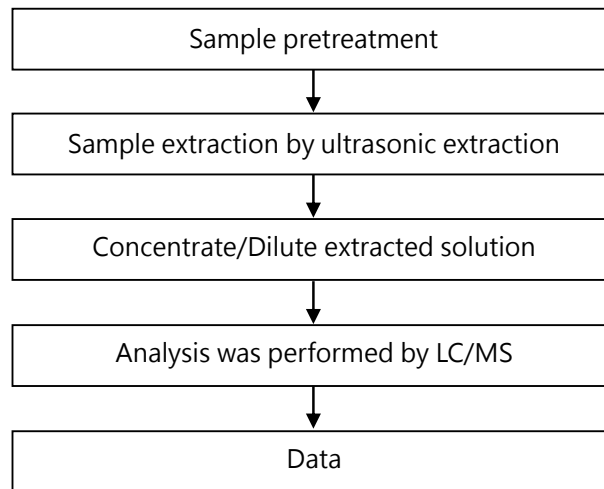


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

JIANN WA ELECTRONICS CO., LTD.

NO.844, SEC. 1, GANGBU RD., WUGI DIST., TAICHUNG CITY, TAIWAN, R. O. C.

### Analytical flow chart - TBBP-A



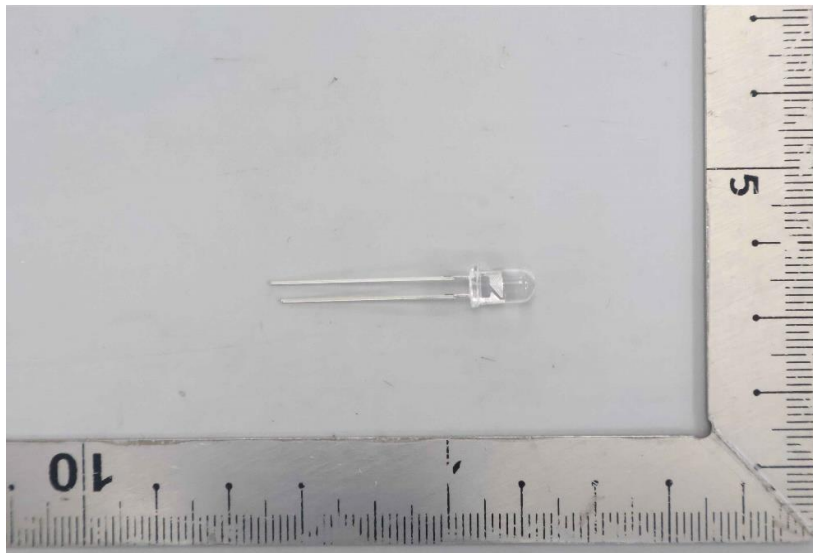
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

JIANN WA ELECTRONICS CO., LTD.

NO.844, SEC. 1, GANGBU RD., WUGI DIST., TAICHUNG CITY, TAIWAN, R. O. C.

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

### ETR24700223 NO.1



### ETR24700223 NO.2



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

## Test Report

No.: ETR24700223

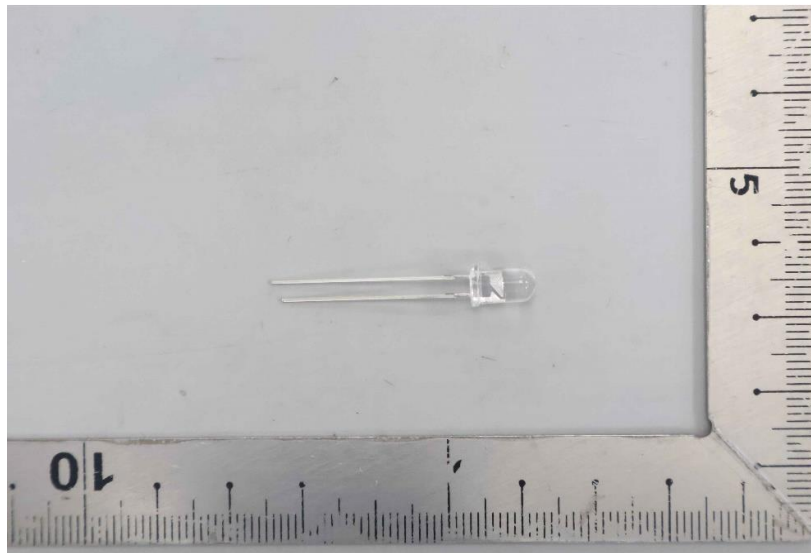
Date: 11-Jul-2024

Page: 13 of 13

JIANN WA ELECTRONICS CO., LTD.

NO.844, SEC. 1, GANGBU RD., WUGI DIST., TAICHUNG CITY, TAIWAN, R. O. C.

### ETR24700223 NO.3



\*\* End of Report \*\*

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com.tw/terms-of-service> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com.tw/terms-of-service>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.