



|  |   |  |   |
|--|---|--|---|
| <b>Prüfbericht - Nr.:</b> 238114637n 001   |   | Seite 1 von 11   |   |
| Test Report No.:   |   | Page 1 of 11   |   |
| <b>Auftraggeber:</b><br>Client:  | Formosa Chemicals & Fibre Corporation<br>201, Tung Hwa N. Rd., Taipei 105, Taiwan, R.O.C.   |  |   |
| <b>Gegenstand der Prüfung:</b><br>Test Item:   | Polystyrene (聚苯乙烯樹脂)  |  |   |
| <b>Bezeichnung:</b><br>Identification:   | TAIRIREX PS:<br>GP5000, GP5250, GP525N, GP5350, GP535A, GP5500, GP550N, HP8250,<br>HP8258, HP825F, HP9450, MP6500, GP535N   |  |   |
| <b>Anlieferungszustand:</b><br>Delivery condition:   | apparent good   | <b>Eingangsdatum:</b><br>Date of Receipt:  | 2020-01-13  |
| <b>Prüfört:</b><br>Testing location:   | TÜV Rheinland (Shanghai) Co. Ltd.   |  |   |
| <b>Prüfgrundlage:</b><br>Test specification:   | According to RoHS (recast): Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, 2011/65/EU Annex II and its amendment Directive (EU) 2015/863: Total Content of Lead, Cadmium, Mercury, Chromium VI, Polybrominated Biphenyls, Polybrominated Diphenyl Ethers; and Benzylbutyl phthalate (BBP), Dibutyl phthalate (DBP), Bis(2-ethylhexyl) phthalate (DEHP), Diisobutyl phthalate (DIBP) |  |   |
| <b>Prüfergebnis:</b><br>Test result:   | According to the kind and extend of tests performed the above mentioned test item passed the test specification.  |  |   |
| <b>geprüft:</b> tested by:   | <b>kontrolliert:</b> checked by:  |  |   |
|   |   |  |   |
| 2020-02-12   | Anya Wang<br>/Project Coordinator   | 2020-02-12   | Arthur Cheng<br>/Project Manager                                  |
| <b>Datum</b><br>Date   | <b>Name/Stellung</b><br>Name/Position   | <b>Unterschrift</b><br>Signature   | <b>Datum</b><br>Date  |
|  |   |  | <b>Name/Stellung</b><br>Name/Position                             |
|  |   |  | <b>Unterschrift</b><br>Signature                                  |
| <b>Sonstiges/ Other Aspects:</b>   |   |  |   |
| Test period: 2020-01-13 – 2020-01-21   |   |  |   |
| <b>Abkürzungen:</b>  | ok / P = entspricht Prüfgrundlage<br>fail / F = entspricht nicht Prüfgrundlage<br>n.a. / N = nicht anwendbar  | <b>Abbreviations:</b>  | ok / P = passed<br>fail / F = failed<br>n.a. / N = not applicable |
| <p><b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b></p> <p><i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i></p> |   |  |   |

Test Report No. : 238114637n 001  
Customer : Formosa Chemicals & Fibre Corporation

2020-02-12

**Sample list:**

| Mat. No. | Description | Material | Color       | Location / Lab no.: |
|----------|-------------|----------|-------------|---------------------|
| 1        | GP5000      | Plastic  | Transparent | TCL200113-01a       |
| 2        | GP5250      | Plastic  | Transparent | TCL200113-01b       |
| 3        | GP525N      | Plastic  | Transparent | TCL200113-01c       |
| 4        | GP5350      | Plastic  | Transparent | TCL200113-01d       |
| 5        | GP535A      | Plastic  | Transparent | TCL200113-01e       |
| 6        | GP5500      | Plastic  | Transparent | TCL200113-01f       |
| 7        | GP550N      | Plastic  | Transparent | TCL200113-01g       |
| 8        | HP8250      | Plastic  | White       | TCL200113-01h       |
| 9        | HP8258      | Plastic  | White       | TCL200113-01i       |
| 10       | HP825F      | Plastic  | White       | TCL200113-01j       |
| 11       | HP9450      | Plastic  | White       | TCL200113-01k       |
| 12       | MP6500      | Plastic  | White       | TCL200113-01l       |
| 13       | GP535N      | Plastic  | Transparent | TCL200113-01m       |

Test Report No. : 238114637n 001  
 Customer : Formosa Chemicals & Fibre Corporation  
 Test Method : Total Cadmium, Lead, Mercury, Chromium  
 - Ref. to IEC 62321-4:2013 and IEC 62321-5:2013  
 Chromium (VI)  
 - For Metal material - Ref. to IEC 62321-7-1:2015  
 - For Plastic or Electronic material - Ref. to IEC 62321-7-2:2017  
 - For Leather material - Ref. to EN ISO 17075-1:2017  
 PBBs, PBDEs - Ref. to IEC 62321-6:2015

2020-02-12

| Sample/Material No.                                  |       | LoD | 1    | 2    | 3    | 4    |
|--|-------|-----|------|------|------|------|
| Cadmium (Cd)   | mg/kg | 2   | n.d. | n.d. | n.d. | n.d. |
| Lead (Pb)  | mg/kg | 2   | n.d. | n.d. | n.d. | n.d. |
| Mercury (Hg)   | mg/kg | 2   | n.d. | n.d. | n.d. | n.d. |
| Chromium VI (Cr VI)*                                 | mg/kg | 8   | n.d. | n.d. | n.d. | n.d. |
| <b>Sum of Polybrominated biphenyls (PBBs)</b>        | mg/kg | -   | n.d. | n.d. | n.d. | n.d. |
| Monobromobiphenyl                                    | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Dibromobiphenyl                                      | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Tribromobiphenyl                                     | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Tetrabromobiphenyl                                   | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Pentabromobiphenyl                                   | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Hexabromobiphenyl                                    | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Heptabromobiphenyl                                   | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Octabromobiphenyl                                    | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Nonabromobiphenyl                                    | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Decabromobiphenyl                                    | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| <b>Sum of Polybrominated diphenyl ethers (PBDEs)</b> | mg/kg | -   | n.d. | n.d. | n.d. | n.d. |
| Monobromodiphenyl ether                              | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Dibromodiphenyl ether                                | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Tribromodiphenyl ether                               | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Tetrabromodiphenyl ether                             | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Pentabromodiphenyl ether                             | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Hexabromodiphenyl ether                              | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Heptabromodiphenyl ether                             | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Octabromodiphenyl ether                              | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Nonabromodiphenyl ether                              | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |
| Decabromodiphenyl ether                              | mg/kg | 5   | n.d. | n.d. | n.d. | n.d. |

Notes:

- n.d. - not detected
- n.a. - not applicable
- LoD - Limit of Detection
- mg/kg is equal to ppm (parts per million)
- \* Once the total Cr content in metal/ plastic or electronic sample is found to be exceeded the limit, the Cr (VI) content will be confirmed with reference to IEC 62321-7-1:2015/ IEC 62321-7-2:2017

Test Report No. : 238114637n 001  
 Customer : Formosa Chemicals & Fibre Corporation  
 Test Method : Total Cadmium, Lead, Mercury, Chromium  
 - Ref. to IEC 62321-4:2013 and IEC 62321-5:2013  
 Chromium (VI)  
 - For Metal material - Ref. to IEC 62321-7-1:2015  
 - For Plastic or Electronic material - Ref. to IEC 62321-7-2:2017  
 - For Leather material - Ref. to EN ISO 17075-1:2017  
 PBBs, PBDEs - Ref. to IEC 62321-6:2015

2020-02-12

| Sample/Material No.  | LoD | 5    | 6    | 7    | 8    |
|--|-----|------|------|------|------|
| Cadmium (Cd) mg/kg   | 2   | n.d. | n.d. | n.d. | n.d. |
| Lead (Pb) mg/kg  | 2   | n.d. | n.d. | n.d. | n.d. |
| Mercury (Hg) mg/kg   | 2   | n.d. | n.d. | n.d. | n.d. |
| Chromium VI (Cr VI)* mg/kg                                 | 8   | n.d. | n.d. | n.d. | n.d. |
| <b>Sum of Polybrominated biphenyls (PBBs)</b> mg/kg        | -   | n.d. | n.d. | n.d. | n.d. |
| Monobromobiphenyl mg/kg                                    | 5   | n.d. | n.d. | n.d. | n.d. |
| Dibromobiphenyl mg/kg                                      | 5   | n.d. | n.d. | n.d. | n.d. |
| Tribromobiphenyl mg/kg                                     | 5   | n.d. | n.d. | n.d. | n.d. |
| Tetrabromobiphenyl mg/kg                                   | 5   | n.d. | n.d. | n.d. | n.d. |
| Pentabromobiphenyl mg/kg                                   | 5   | n.d. | n.d. | n.d. | n.d. |
| Hexabromobiphenyl mg/kg                                    | 5   | n.d. | n.d. | n.d. | n.d. |
| Heptabromobiphenyl mg/kg                                   | 5   | n.d. | n.d. | n.d. | n.d. |
| Octabromobiphenyl mg/kg                                    | 5   | n.d. | n.d. | n.d. | n.d. |
| Nonabromobiphenyl mg/kg                                    | 5   | n.d. | n.d. | n.d. | n.d. |
| Decabromobiphenyl mg/kg                                    | 5   | n.d. | n.d. | n.d. | n.d. |
| <b>Sum of Polybrominated diphenyl ethers (PBDEs)</b> mg/kg | -   | n.d. | n.d. | n.d. | n.d. |
| Monobromodiphenyl ether mg/kg                              | 5   | n.d. | n.d. | n.d. | n.d. |
| Dibromodiphenyl ether mg/kg                                | 5   | n.d. | n.d. | n.d. | n.d. |
| Tribromodiphenyl ether mg/kg                               | 5   | n.d. | n.d. | n.d. | n.d. |
| Tetrabromodiphenyl ether mg/kg                             | 5   | n.d. | n.d. | n.d. | n.d. |
| Pentabromodiphenyl ether mg/kg                             | 5   | n.d. | n.d. | n.d. | n.d. |
| Hexabromodiphenyl ether mg/kg                              | 5   | n.d. | n.d. | n.d. | n.d. |
| Heptabromodiphenyl ether mg/kg                             | 5   | n.d. | n.d. | n.d. | n.d. |
| Octabromodiphenyl ether mg/kg                              | 5   | n.d. | n.d. | n.d. | n.d. |
| Nonabromodiphenyl ether mg/kg                              | 5   | n.d. | n.d. | n.d. | n.d. |
| Decabromodiphenyl ether mg/kg                              | 5   | n.d. | n.d. | n.d. | n.d. |

Notes:

- n.d. - not detected
- n.a. - not applicable
- LoD - Limit of Detection
- mg/kg is equal to ppm (parts per million)
- \* Once the total Cr content in metal/ plastic or electronic sample is found to be exceeded the limit, the Cr (VI) content will be confirmed with reference to IEC 62321-7-1:2015/ IEC 62321-7-2:2017

Test Report No. : 238114637n 001 2020-02-12  
 Customer : Formosa Chemicals & Fibre Corporation  
 Test Method : Total Cadmium, Lead, Mercury, Chromium  
 - Ref. to IEC 62321-4:2013 and IEC 62321-5:2013  
 Chromium (VI)  
 - For Metal material - Ref. to IEC 62321-7-1:2015  
 - For Plastic or Electronic material - Ref. to IEC 62321-7-2:2017  
 - For Leather material - Ref. to EN ISO 17075-1:2017  
 PBBs, PBDEs - Ref. to IEC 62321-6:2015

| Sample/Material No.  | LoD | 9    | 10   | 11   | 12   |
|--|-----|------|------|------|------|
| Cadmium (Cd) mg/kg   | 2   | n.d. | n.d. | n.d. | n.d. |
| Lead (Pb) mg/kg  | 2   | n.d. | n.d. | n.d. | n.d. |
| Mercury (Hg) mg/kg   | 2   | n.d. | n.d. | n.d. | n.d. |
| Chromium VI (Cr VI)* mg/kg                                 | 8   | n.d. | n.d. | n.d. | n.d. |
| <b>Sum of Polybrominated biphenyls (PBBs)</b> mg/kg        | -   | n.d. | n.d. | n.d. | n.d. |
| Monobromobiphenyl mg/kg                                    | 5   | n.d. | n.d. | n.d. | n.d. |
| Dibromobiphenyl mg/kg                                      | 5   | n.d. | n.d. | n.d. | n.d. |
| Tribromobiphenyl mg/kg                                     | 5   | n.d. | n.d. | n.d. | n.d. |
| Tetrabromobiphenyl mg/kg                                   | 5   | n.d. | n.d. | n.d. | n.d. |
| Pentabromobiphenyl mg/kg                                   | 5   | n.d. | n.d. | n.d. | n.d. |
| Hexabromobiphenyl mg/kg                                    | 5   | n.d. | n.d. | n.d. | n.d. |
| Heptabromobiphenyl mg/kg                                   | 5   | n.d. | n.d. | n.d. | n.d. |
| Octabromobiphenyl mg/kg                                    | 5   | n.d. | n.d. | n.d. | n.d. |
| Nonabromobiphenyl mg/kg                                    | 5   | n.d. | n.d. | n.d. | n.d. |
| Decabromobiphenyl mg/kg                                    | 5   | n.d. | n.d. | n.d. | n.d. |
| <b>Sum of Polybrominated diphenyl ethers (PBDEs)</b> mg/kg | -   | n.d. | n.d. | n.d. | n.d. |
| Monobromodiphenyl ether mg/kg                              | 5   | n.d. | n.d. | n.d. | n.d. |
| Dibromodiphenyl ether mg/kg                                | 5   | n.d. | n.d. | n.d. | n.d. |
| Tribromodiphenyl ether mg/kg                               | 5   | n.d. | n.d. | n.d. | n.d. |
| Tetrabromodiphenyl ether mg/kg                             | 5   | n.d. | n.d. | n.d. | n.d. |
| Pentabromodiphenyl ether mg/kg                             | 5   | n.d. | n.d. | n.d. | n.d. |
| Hexabromodiphenyl ether mg/kg                              | 5   | n.d. | n.d. | n.d. | n.d. |
| Heptabromodiphenyl ether mg/kg                             | 5   | n.d. | n.d. | n.d. | n.d. |
| Octabromodiphenyl ether mg/kg                              | 5   | n.d. | n.d. | n.d. | n.d. |
| Nonabromodiphenyl ether mg/kg                              | 5   | n.d. | n.d. | n.d. | n.d. |
| Decabromodiphenyl ether mg/kg                              | 5   | n.d. | n.d. | n.d. | n.d. |

Notes:

- n.d. - not detected
- n.a. - not applicable
- LoD - Limit of Detection
- mg/kg is equal to ppm (parts per million)
- \* Once the total Cr content in metal/ plastic or electronic sample is found to be exceeded the limit, the Cr (VI) content will be confirmed with reference to IEC 62321-7-1:2015/ IEC 62321-7-2:2017

Test Report No. : 238114637n 001 2020-02-12  
 Customer : Formosa Chemicals & Fibre Corporation  
 Test Method : Total Cadmium, Lead, Mercury, Chromium  
 - Ref. to IEC 62321-4:2013 and IEC 62321-5:2013  
 Chromium (VI)  
 - For Metal material - Ref. to IEC 62321-7-1:2015  
 - For Plastic or Electronic material - Ref. to IEC 62321-7-2:2017  
 - For Leather material - Ref. to EN ISO 17075-1:2017  
 PBBs, PBDEs - Ref. to IEC 62321-6:2015

| Sample/Material No.                                  |       | LoD | 13   |
|--|-------|-----|------|
| Cadmium (Cd)   | mg/kg | 2   | n.d. |
| Lead (Pb)  | mg/kg | 2   | n.d. |
| Mercury (Hg)   | mg/kg | 2   | n.d. |
| Chromium VI (Cr VI)*                                 | mg/kg | 8   | n.d. |
| <b>Sum of Polybrominated biphenyls (PBBs)</b>        | mg/kg | -   | n.d. |
| Monobromobiphenyl                                    | 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 Polybrominated diphenyl ethers (PBDEs)</b> | mg/kg | -   | n.d. |
| 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. |

**Notes:**

- n.d. - not detected
- n.a. - not applicable
- LoD - Limit of Detection
- mg/kg is equal to ppm (parts per million)
- \* Once the total Cr content in metal/ plastic or electronic sample is found to be exceeded the limit, the Cr (VI) content will be confirmed with reference to IEC 62321-7-1:2015/ IEC 62321-7-2:2017

|   | Cd  | Cr(VI) | Pb   | Hg   | PBBs | PBDEs |
|---|-----|--------|------|------|------|-------|
| <b>Maximum permissible Limit acc. to 2011/65/EU (mg/kg)</b> | 100 | 1000   | 1000 | 1000 | 1000 | 1000  |

Test Report No. : 238114637n 001  
 Customer : Formosa Chemicals & Fibre Corporation  
 Test Method : BBP/DBP/DEHP/DIBP - Ref. to IEC 62321-8:2017

2020-02-12

| Sample/Material No.                | LoD | 1    | 2    | 3    | 4    |
|------------------------------------|-----|------|------|------|------|
| Benzylbutylphthalate (BBP) mg/kg   | 50  | n.d. | n.d. | n.d. | n.d. |
| Dibutylphthalate (DBP) mg/kg       | 50  | n.d. | n.d. | n.d. | n.d. |
| Diethylhexylphthalate (DEHP) mg/kg | 50  | n.d. | n.d. | n.d. | n.d. |
| Diisobutylphthalate (DIBP) mg/kg   | 50  | n.d. | n.d. | n.d. | n.d. |

| Sample/Material No.                | LoD | 5    | 6    | 7    | 8    |
|------------------------------------|-----|------|------|------|------|
| Benzylbutylphthalate (BBP) mg/kg   | 50  | n.d. | n.d. | n.d. | n.d. |
| Dibutylphthalate (DBP) mg/kg       | 50  | n.d. | n.d. | n.d. | n.d. |
| Diethylhexylphthalate (DEHP) mg/kg | 50  | n.d. | n.d. | n.d. | n.d. |
| Diisobutylphthalate (DIBP) mg/kg   | 50  | n.d. | n.d. | n.d. | n.d. |

| Sample/Material No.                | LoD | 9    | 10   | 11   | 12   |
|------------------------------------|-----|------|------|------|------|
| Benzylbutylphthalate (BBP) mg/kg   | 50  | n.d. | n.d. | n.d. | n.d. |
| Dibutylphthalate (DBP) mg/kg       | 50  | n.d. | n.d. | n.d. | n.d. |
| Diethylhexylphthalate (DEHP) mg/kg | 50  | n.d. | n.d. | n.d. | n.d. |
| Diisobutylphthalate (DIBP) mg/kg   | 50  | n.d. | n.d. | n.d. | n.d. |

| Sample/Material No.                | LoD | 13   |
|------------------------------------|-----|------|
| Benzylbutylphthalate (BBP) mg/kg   | 50  | n.d. |
| Dibutylphthalate (DBP) mg/kg       | 50  | n.d. |
| Diethylhexylphthalate (DEHP) mg/kg | 50  | n.d. |
| Diisobutylphthalate (DIBP) mg/kg   | 50  | n.d. |

**Notes:**

- n.d. - not detected
- n.a. - not applicable
- LoD - Limit of Detection
- mg/kg is equal to ppm (parts per million)

|  | <b>BBP</b> | <b>DBP</b> | <b>DEHP</b> | <b>DIBP</b> |
|--|------------|------------|-------------|-------------|
| <b>Maximum permissible Limit acc. to (EU) 2015/863 (mg/kg)</b> | 1000       | 1000       | 1000        | 1000        |

Test Report No. : 238114637n 001  
Customer : Formosa Chemicals & Fibre Corporation

2020-02-12

Test Sample



1



2



3



4



5



6



7



8



9



10



11



12



Test Report No. : 238114637n 001  
Customer : Formosa Chemicals & Fibre Corporation

2020-02-12



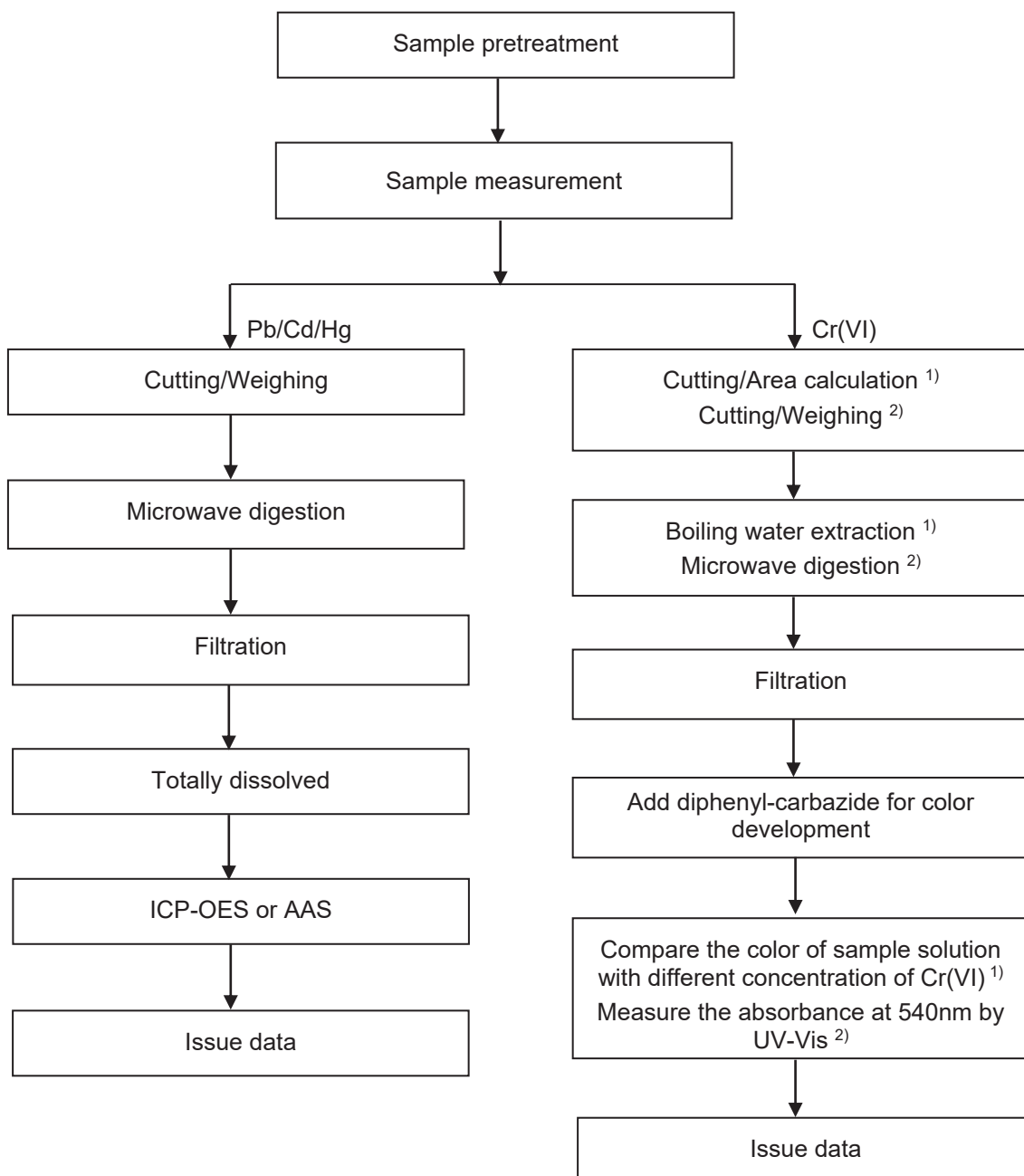
13

Test Report No. : 238114637n 001  
Customer : Formosa Chemicals & Fibre Corporation

2020-02-12

**Testing procedure:**

RoHS (Pb, Cd, Hg, Cr(VI))



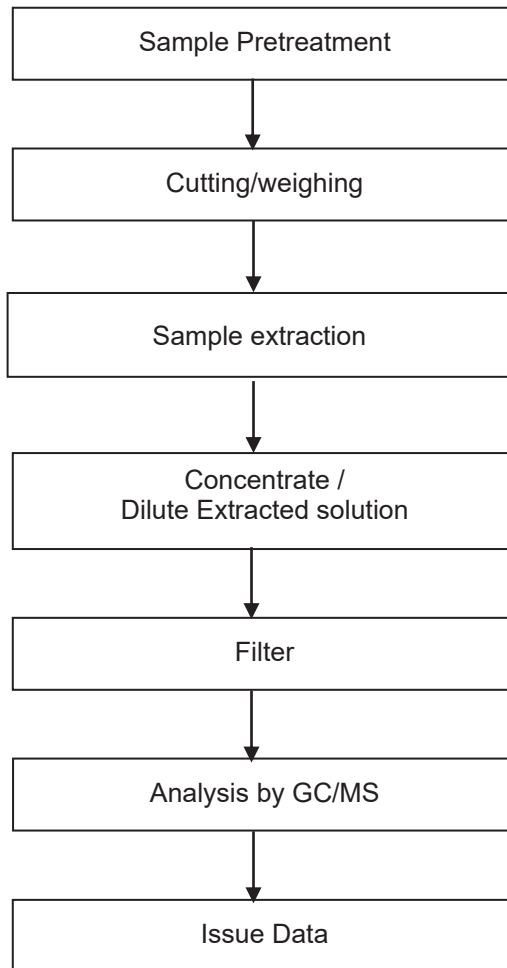
Notes: <sup>1)</sup> For metallic material  
<sup>2)</sup> For non-metallic material

Test Report No. : 238114637n 001  
Customer : Formosa Chemicals & Fibre Corporation

2020-02-12

**Testing procedure:**

RoHS (PBBs/PBDEs, DEHP/DBP/BBP/DIBP)



--- End of Test-Report ---