



Test Report

No.: ETR21C02538

Date: 21-Dec-2021

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SHOWA DENKO MATERIALS CO., LTD.
1500 OGAWA, CHIKUSEI-SHI IBARAKI, 308-8521, JAPAN

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

Sample Submitted By : SHOWA DENKO MATERIALS CO., LTD.
 Sample Name : COPPER CLAD LAMINATES WITHOUT COPPER (PLASTIC PART OF MCL) /
 GLASS EPOXY PREPREG
 Style/Item No. : MCL-E-679FGB(R) PLASTIC PART / MCL-E-679FG(R) PLASTIC PART /
 MCL-E-679FG(RM) PLASTIC PART / MCL-E-679FGB PLASTIC PART /
 MCL-E-679FG PLASTIC PART / GEA-679FG(R) / GEA-679FG

=====
 Sample Receiving Date : 14-Dec-2021
 Testing Period : 14-Dec-2021 to 21-Dec-2021

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

Test Results : Please refer to following pages.

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




PIN CODE: 44598A35

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Test Part Description

No.1 : BLACK SHEET

Test Result(s)

| Test Item(s) | Method | Unit | MDL | Result |
|--|---|-------|------|--------|
| | | | | No.1 |
| Cadmium (Cd) (CAS No.: 7440-43-9) | With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. |
| Lead (Pb) (CAS No.: 7439-92-1) | With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES. | mg/kg | 2 | 5.06 |
| Mercury (Hg) (CAS No.: 7439-97-6) | With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. |
| Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9) | With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS. | mg/kg | 8 | n.d. |
| 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. |
| Sum of PBBs | | 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. | |
| Sum of PBDEs | mg/kg | - | n.d. | |

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Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. "-" = Not Regulated

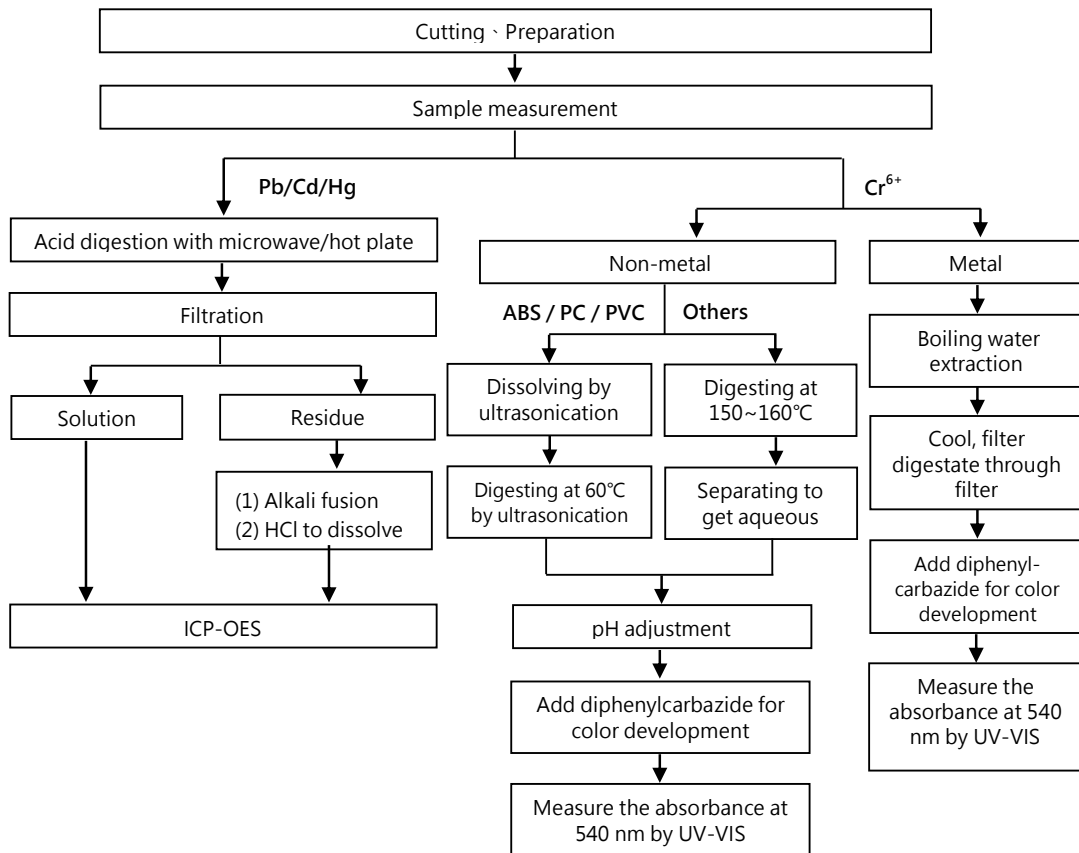
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Analytical flow chart of Heavy Metal

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

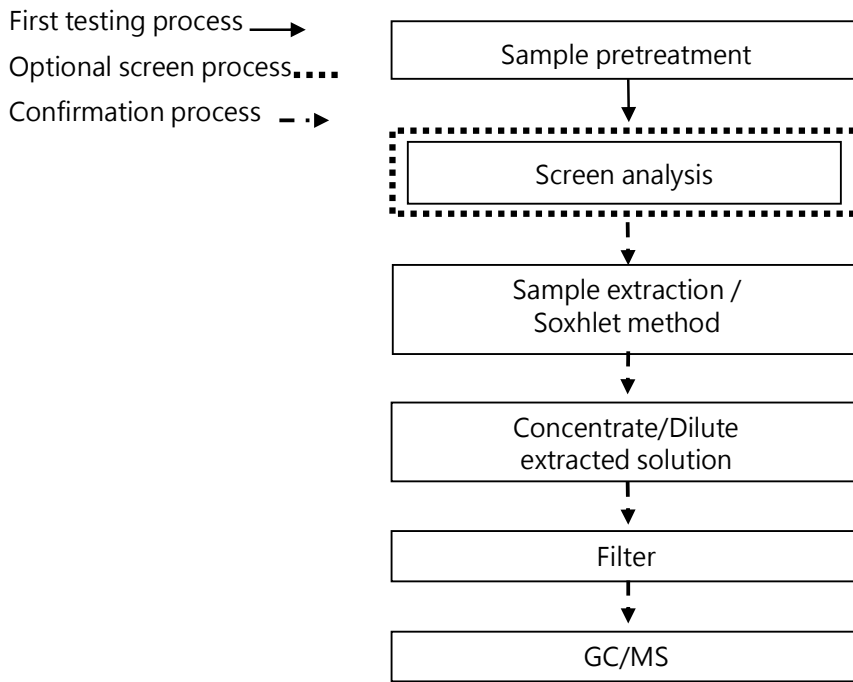
(Cr⁶⁺ test method excluded)



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Analytical flow chart – PBBs / PBDEs



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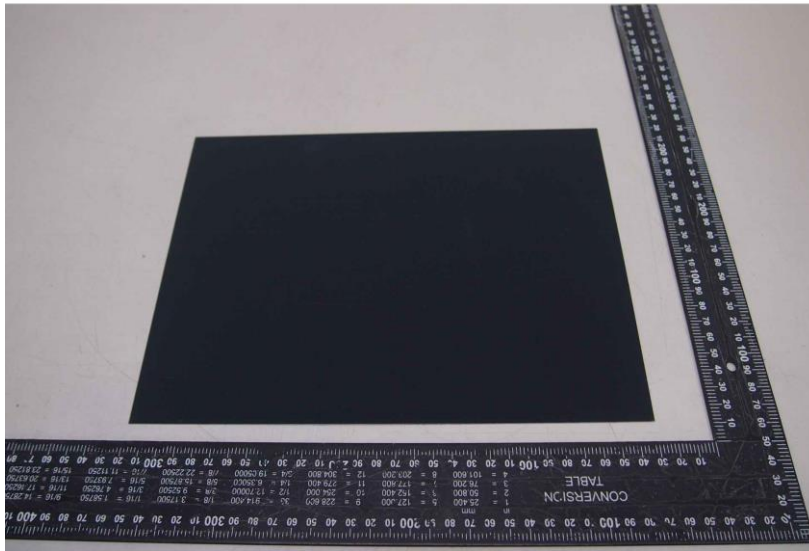
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* The tested sample / part is marked by an arrow if it's shown on the photo. *

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** End of Report **

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