Test Report

No.: ETR21303057 Date: 18-Mar-2021

A.L.M.T. Corp.
398-16. Murahigashiyama, Juriduka, Sakata-City, Yamagata, Japan

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

Sample Submitted By : A.L.M.T. Corp.
Sample Name : CPC plate

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Sample Receiving Date : 10-Mar-2021
Testing Period : 10-Mar-2021 to 17-Mar-2021

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) As specified by client, to test Halogen-Fluorine, Chlorine, Bromine, Iodine in the submitted sample.

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

CHECK REPORT
PIN CODE: 882641B6

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Test Part Description

No.1 : COPPER COLORED METAL

Test Result(s)

Test Item(s)	Method	Unit	MDL	Result No.1	Limit
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.	100
Lead (Pb) (CAS No.: 7439-92-1)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	1000
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.	1000
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9) (#2)	With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.	$\mu g/cm^2$	0.1	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.	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.	-
Sum of PBDEs		mg/kg	-	n.d.	1000

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Test Item(s)	Method	Unit	MDL	Result No.1	Limit
Butyl benzyl phthalate (BBP) (CAS No.: 85-68-7)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Dibutyl phthalate (DBP) (CAS No.: 84-74-2)		mg/kg	50	n.d.	1000
Di-(2-ethylhexyl) phthalate (DEHP) (CAS No.: 117-81-7)		mg/kg	50	n.d.	1000
Diisobutyl phthalate (DIBP) (CAS No.: 84-69-5)		mg/kg	50	n.d.	1000
Fluorine (F) (CAS No.: 14762-94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	-
Chlorine (Cl) (CAS No.: 22537-15-1)		mg/kg	50	n.d.	-
Bromine (Br) (CAS No.: 10097-32-2)		mg/kg	50	n.d.	-
Iodine (I) (CAS No.: 14362-44-8)		mg/kg	50	n.d.	-

Note：

1. mg/kg = ppm；0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. "-" = Not Regulated
5. (#2) =
   a. 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. 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. The result between 0.10 μg/cm² and 0.13 μg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.
6. The statement of compliance conformity is based on comparison of testing results and limits.

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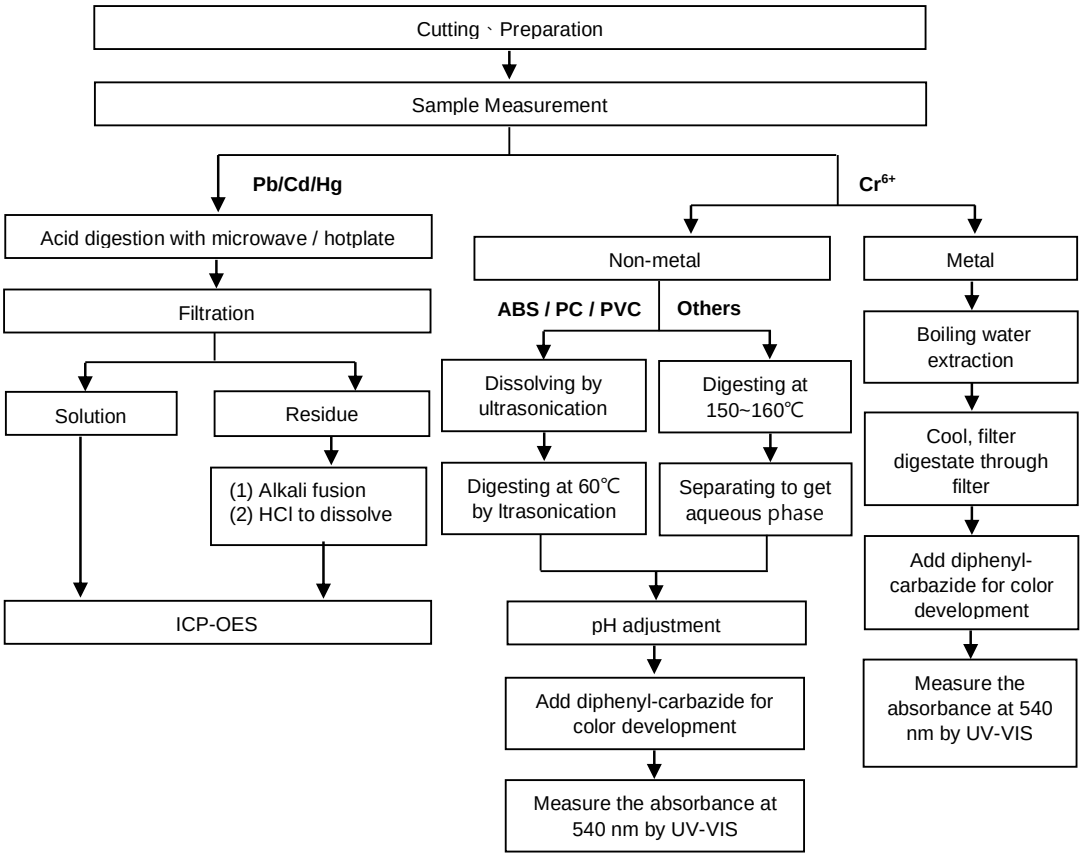
Analytical flow chart of Heavy Metal

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

(Cr^{6+} test method excluded)



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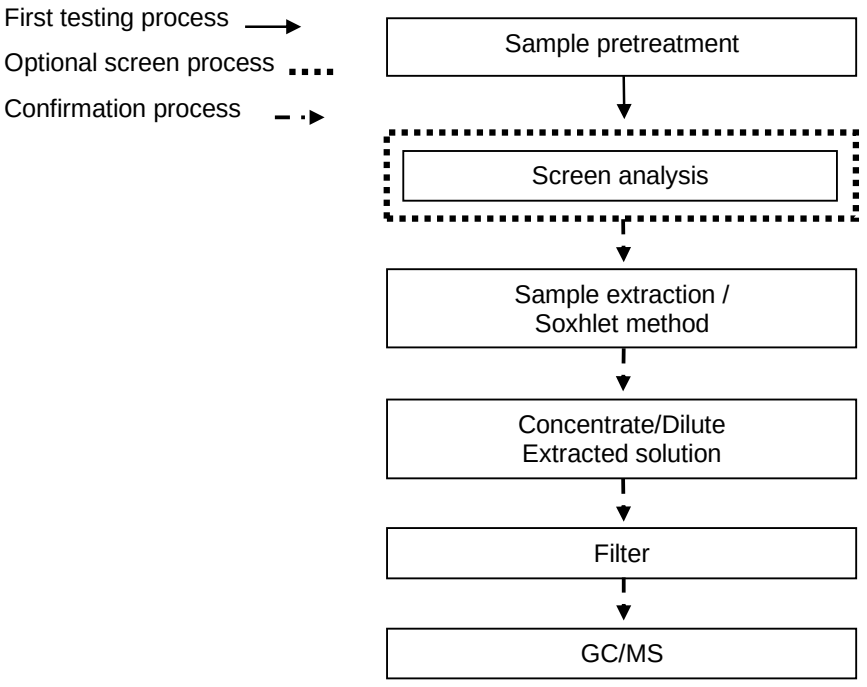
Analytical flow chart – PBBs / PBDEs



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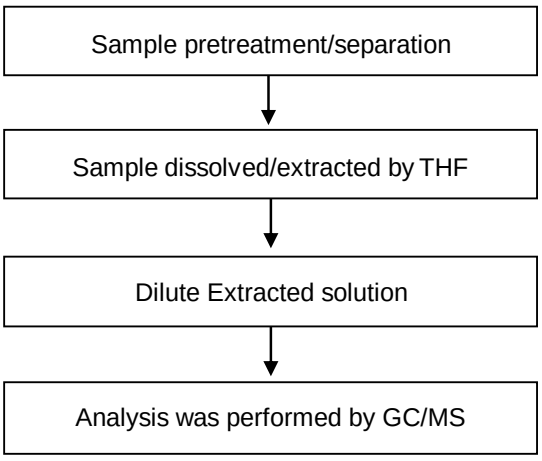
Analytical flow chart - Phthalate

【Test method: IEC 62321-8】



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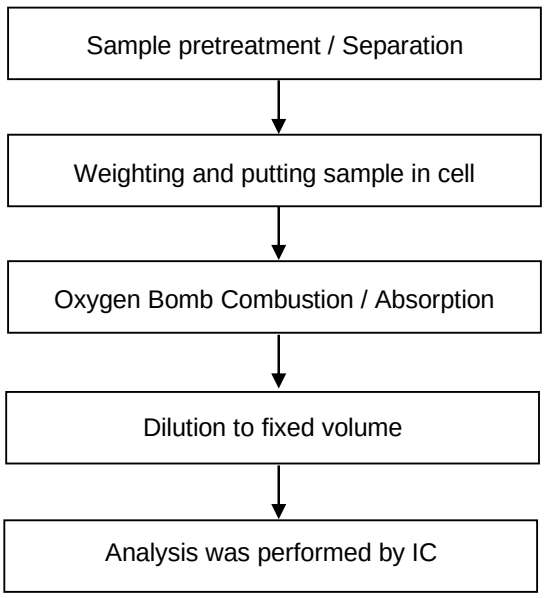
Analytical flow chart - Halogen



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

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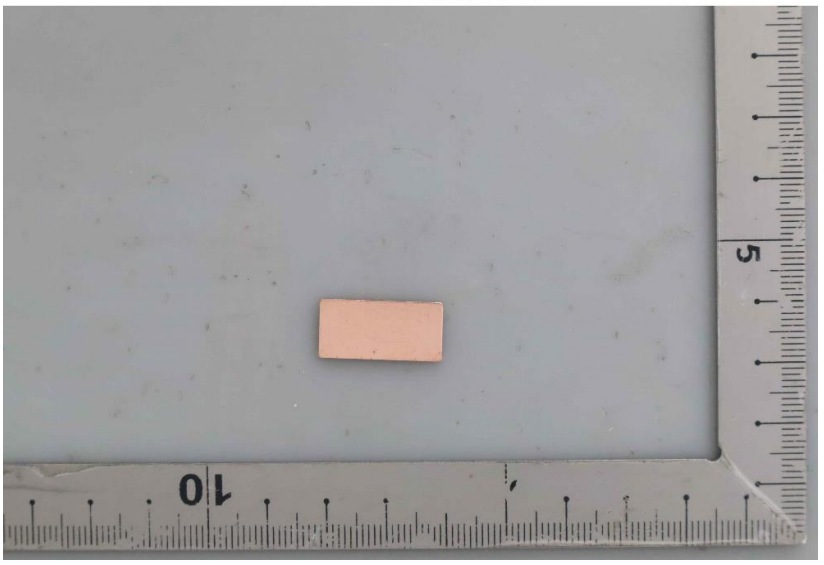

** End of Report **