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A.L.M.T. Corp.

398-16. Murahigashiyama, Juriduka, Sakata-City, Yamagata, Japan

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

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

Sample Receiving Date

: 07-Mar-2025

**Testing Period** 

: 07-Mar-2025 to 14-Mar-2025

**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 Malager
Signed for and on behalf of Alwah
SGS TAIWAN LTD.
Chemical Laboratory - Taipei



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**Test Part Description** 

No.1 : COPPER COLORED METAL SHEET

### Test Result(s)

Test Item(s)	Method	Unit	MDL	Result	Limit
	W''		2	No.1	100
Cadmium (Cd)	With reference to IEC 62321-5: 2013,	mg/kg	2	n.d.	100
1 (01)	analysis was performed by ICP-OES.		2		1000
Lead (Pb)	With reference to IEC 62321-5: 2013,	mg/kg	2	n.d.	1000
<b>11</b>	analysis was performed by ICP-OES.	4	2		1000
Mercury (Hg)	With reference to IEC 62321-4: 2013+	mg/kg	2	n.d.	1000
	AMD1: 2017, analysis was performed				
	by ICP-OES.	, ,	0.1		
Hexavalent Chromium Cr(VI) (#2)	With reference to IEC 62321-7-1: 2015,	μg/cm²	0.1	n.d.	-
	analysis was performed by UV-VIS.				
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.	1
Nonabromobiphenyl		mg/kg	5	n.d.	ı
Decabromobiphenyl		mg/kg	5	n.d.	ī
Sum of PBBs	With reference to IEC 62321-6: 2015,	mg/kg	I	n.d.	1000
Monobromodiphenyl ether	analysis was performed by GC/MS.	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	$\neg$	mg/kg	-	n.d.	1000

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Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Butyl benzyl phthalate (BBP)		mg/kg	50	n.d.	1000
Dibutyl phthalate (DBP)	With reference to IEC 62321-8: 2017,	mg/kg	50	n.d.	1000
Di-(2-ethylhexyl) phthalate (DEHP)	analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Diisobutyl phthalate (DIBP)		mg/kg	50	n.d.	1000
Fluorine (F) (CAS No.: 14762-94-8)		mg/kg	50	n.d.	-
Chlorine (Cl) (CAS No.: 22537-15-1)	With reference to BS EN 14582: 2016,	mg/kg	50	n.d.	-
Bromine (Br) (CAS No.: 10097-32-2)	analysis was performed by IC.	mg/kg	50	n.d.	-
lodine (I) (CAS No.: 14362-44-8)		mg/kg	50	n.d.	-
Beryllium (Be) (CAS No.: 7440-41-7)	With reference to US EPA 3050B: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.	-
Antimony (Sb) (CAS No.: 7440-36-0)	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 (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  $\mu$ g/cm<sup>2</sup>. 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  $\mu$ g/cm<sup>2</sup>). The coating is considered a non-Cr(VI) based coating
  - c. The result between 0.10  $\mu$ g/cm<sup>2</sup> and 0.13  $\mu$ g/cm<sup>2</sup> is considered to be inconclusive unavoidable coating variations may influence the determination.
- 6. 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.

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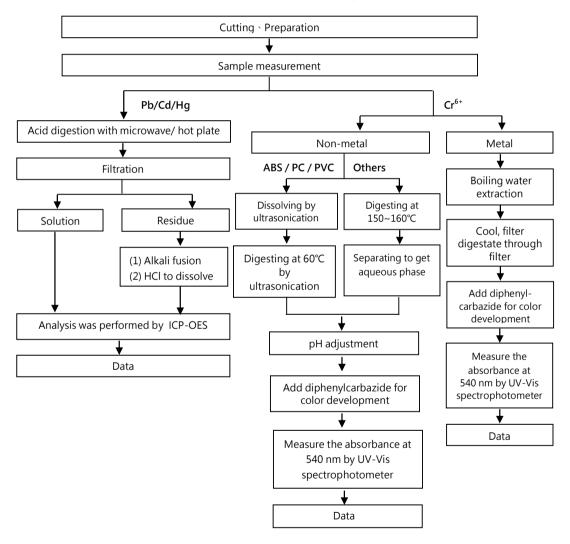
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### Analytical flow chart of heavy metal

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

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



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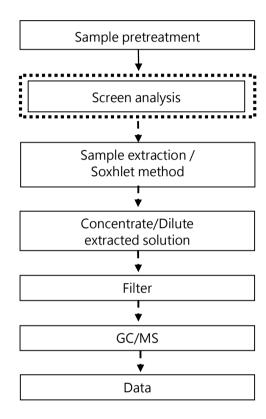
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### Analytical flow chart - PBBs / PBDEs

First testing process

Optional screen process

Confirmation process



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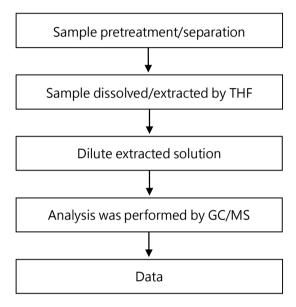
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### Analytical flow chart - Phthalate

【Test method: IEC 62321-8】



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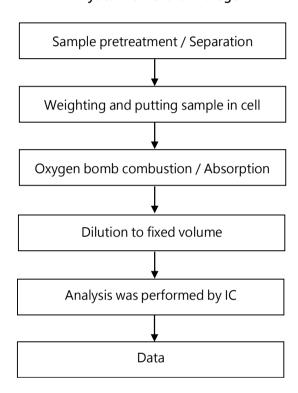


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### Analytical flow chart - Halogen



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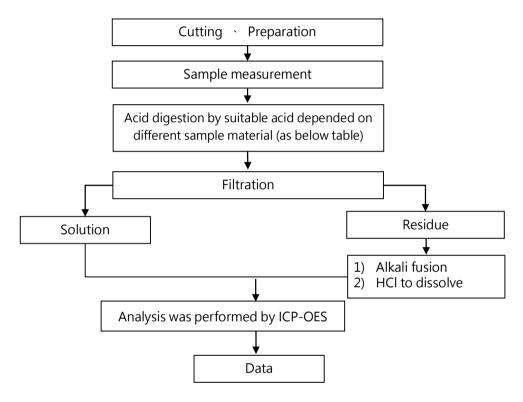
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### Flow chart of digestion for the elements analysis performed by ICP-OES

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



Steel, copper, aluminum, solder	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>		
Glass	HNO <sub>3</sub> /HF		
Gold, platinum, palladium, ceramic	Aqua regia		
Silver	HNO₃		
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl		
Others	Added appropriate reagent to total digestion		

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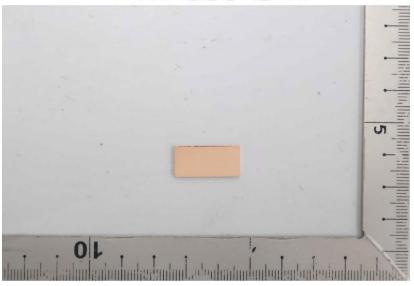
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\* The tested sample / part is marked by an arrow if it's shown on the photo. \*

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\*\* End of Report \*\*

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