

## Test Report

No. XMNML1901705308

Date: 11 Dec 2019

Page 1 of 10

HOLLYLAND(CHINA) ELECTRONICS TECHNOLOGY CORPORATION LIMITED & HOLLYLAND(XIAMEN) TECHNOLOGY CORPORATION LIMITED

NO.829, FANGSHAN EAST 2ND ROAD, XIANG'AN, XIAMEN, CHINA

**Results and photos of No.061 in this report refer to No.008 in test report XMNML1901637201;  
Results and photos of No.034~No.38 in this report refer to test report XMNML1901705301.**

The following sample(s) was/were submitted and identified on behalf of the clients as : Material for PTC Series

SGS Job No. : XMIN1911008452PC - XM  
Date of Second Sample Received : No.035 was received in 29 Nov 2019  
Date of Sample Received : 22 Nov 2019  
Testing Period : 22 Nov 2019 - 06 Dec 2019  
Test Requested : Selected test(s) as requested by client.  
Test Method : Please refer to next page(s).  
Test Results : Please refer to next page(s).  
Conclusion : Based on the performed tests on selected part of submitted sample(s), the results of Cadmium, Lead, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of  
SGS-CSTC Standards Technical Services Co., Ltd. Xiamen Branch

*Rae chen*

Rae Chen  
Approved Signatory



XMNML1901705308



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	XMN19-017053.034	Copper-colored metal wire(after removed silvery plating)(said to be"Tin-plated copper wire")
SN2	XMN19-017053.035	Silvery plating on metal wire(said to be"The Plating of Tin-plated copper wire")
SN3	XMN19-017053.036	Black solid material (said to be"Black plastic(composite polymer)")
SN4	XMN19-017053.037	Orange yellow powder(said to be"Epoxy resin")
SN5	XMN19-017053.038	Silver plated metal foil( said to be "Ni-plated copper foil")
SN6	XMN19-017053.061	Silvery metal wire(said to be"Solder")

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected ( < MDL )
- (4) "-" = Not Regulated

**RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU**

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	036	037
Cadmium (Cd)	100	mg/kg	2	ND	ND
Lead (Pb)	1,000	mg/kg	2	ND	ND
Mercury (Hg)	1,000	mg/kg	2	ND	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND	ND
Sum of PBBs	1,000	mg/kg	-	ND	ND
Monobromobiphenyl	-	mg/kg	5	ND	ND
Dibromobiphenyl	-	mg/kg	5	ND	ND
Tribromobiphenyl	-	mg/kg	5	ND	ND
Tetrabromobiphenyl	-	mg/kg	5	ND	ND
Pentabromobiphenyl	-	mg/kg	5	ND	ND
Hexabromobiphenyl	-	mg/kg	5	ND	ND
Heptabromobiphenyl	-	mg/kg	5	ND	ND
Octabromobiphenyl	-	mg/kg	5	ND	ND
Nonabromobiphenyl	-	mg/kg	5	ND	ND



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No. XMNML1901705308

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Page 3 of 10

Test Item(s)	Limit	Unit	MDL	036	037
Decabromobiphenyl	-	mg/kg	5	ND	ND
Sum of PBDEs	1,000	mg/kg	-	ND	ND
Monobromodiphenyl ether	-	mg/kg	5	ND	ND
Dibromodiphenyl ether	-	mg/kg	5	ND	ND
Tribromodiphenyl ether	-	mg/kg	5	ND	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND
Octabromodiphenyl ether	-	mg/kg	5	ND	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND
Decabromodiphenyl ether	-	mg/kg	5	ND	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series  
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- (2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.
- (3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

**RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU**

Test Method : With reference to IEC 62321-4:2013+A1:2017 , IEC 62321-5:2013, IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis .

Test Item(s)	Limit	Unit	MDL	034	038	061
Cadmium (Cd)	100	mg/kg	2	ND	ND	ND
Lead (Pb)	1,000	mg/kg	2	3	ND	11
Mercury (Hg)	1,000	mg/kg	2	ND	ND	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm <sup>2</sup>	0.10	ND	ND	ND



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Notes :

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- (2) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm2. The sample coating is considered to contain CrVI
  - b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm2). The coating is considered a non-CrVI 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
 Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

**RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU**

Test Method : With reference to IEC 62321-4:2013+A1:2017 , IEC62321-5:2013, IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis .

Test Item(s)	Limit	Unit	MDL	035
Cadmium (Cd)	100	mg/kg	10	ND
Lead (Pb)	1,000	mg/kg	10	106
Mercury (Hg)	1,000	mg/kg	10	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm <sup>2</sup>	0.10	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series  
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- (2) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm2. The sample coating is considered to contain CrVI
  - b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm2). The coating is considered a non-CrVI 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
 Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

Remark: The test was subcontracted to SGS Guangzhou chemical lab.



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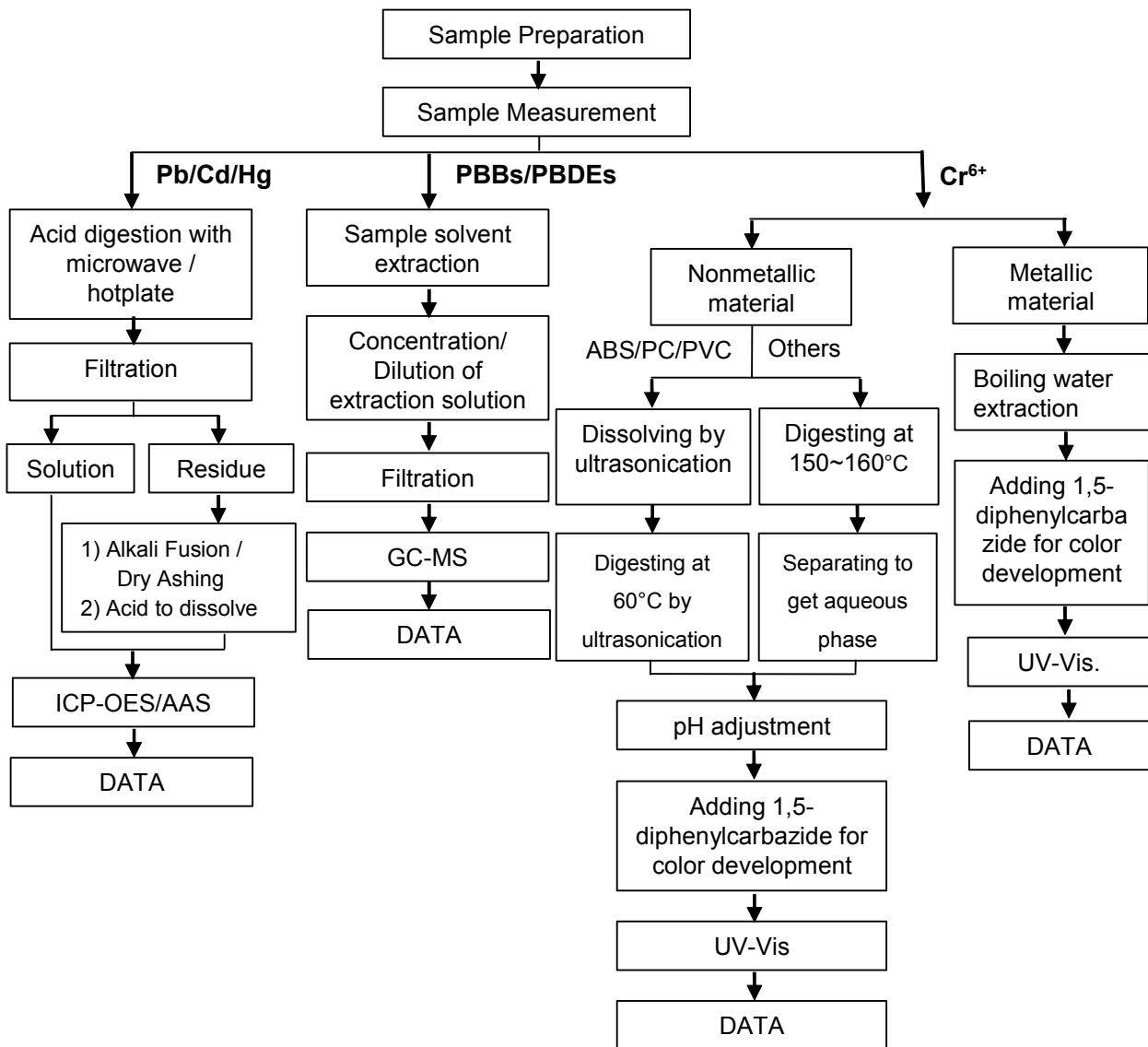
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Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs Testing Flow Chart

These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).



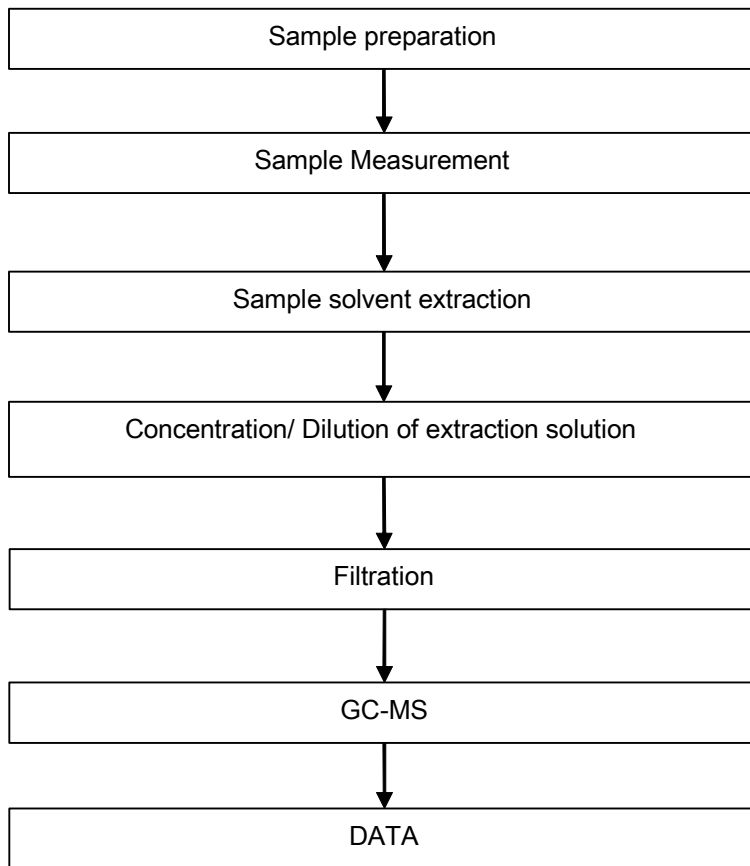
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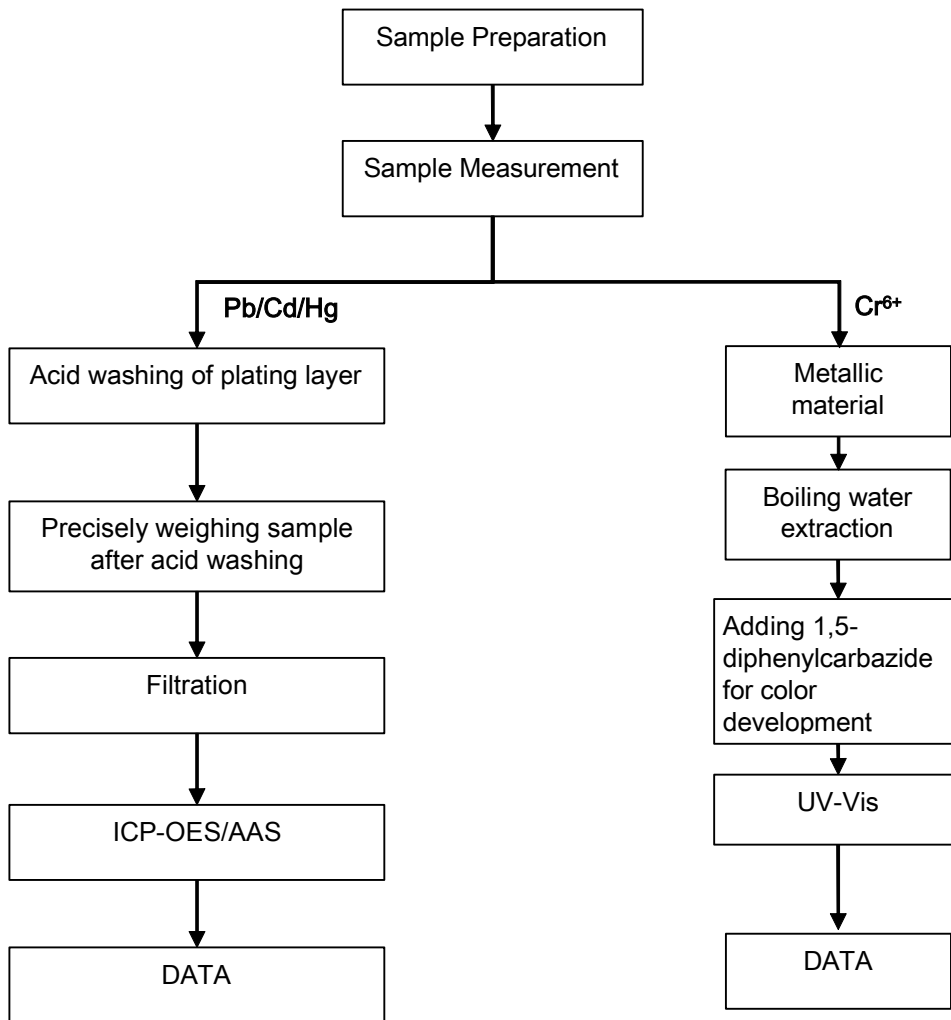
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### Phthalates Testing Flow Chart



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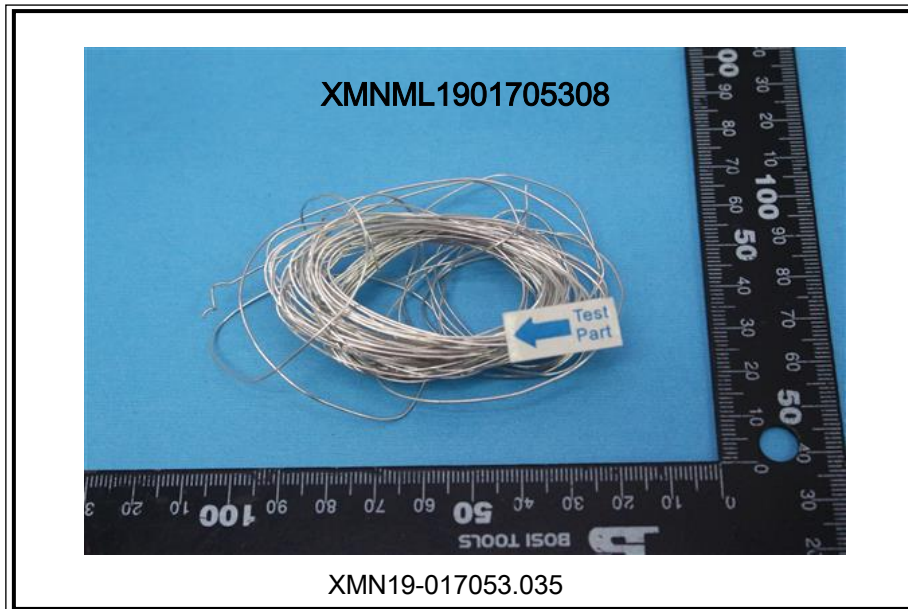
Plating Pb/Cd/Hg/Cr<sup>6+</sup> Testing Flow Chart



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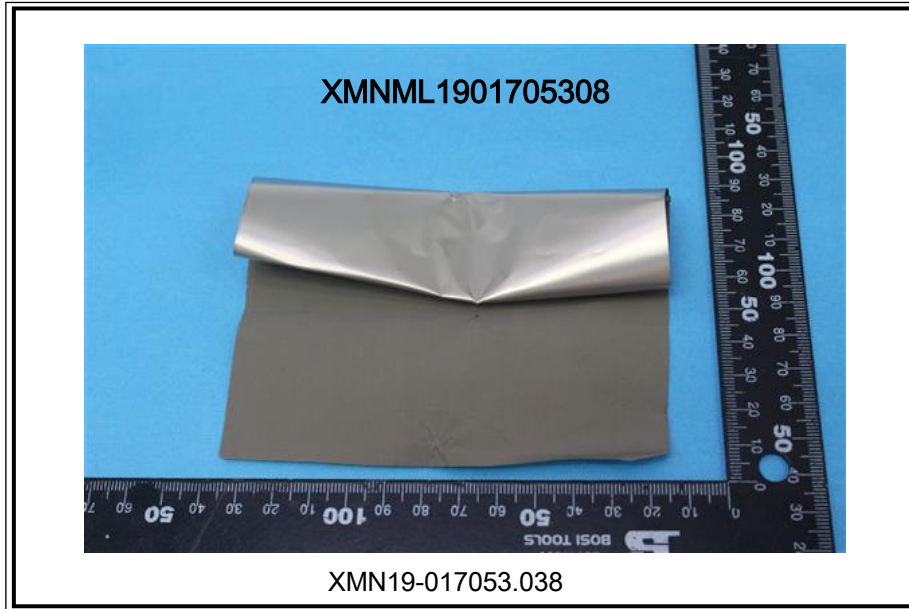
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