



Test Report No. F690101/LF-CTSAYAA25-47442

Issued Date : 2025. 11. 25

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KISTRON CO., LTD.

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

SGS File No. : AYAA25-47442
Product Name : Sn Plating layer
Item No./Part No. : N/A
Client Reference Data : TPC(TPCH), TPC(T), TCA(TCAH), TCO(TCOH), TCOHF, TSBC(TSBCH), HTPC, TDA, TPNC, TCAAB, TCCT, ULTRAC, ULTRAI, TCAHF, ULTRACOH, TNCA
Received Date : 2025. 11. 18
Test Period : 2025. 11. 18 to 2025. 11. 25
Report Comments : By the applicant's request, item No.s/part No.s & client reference information are stated/added on report.
Test Results : For further details, please refer to following page(s)

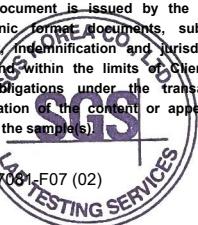
Monet Jeong

Technical Manager / SGS Korea Co., Ltd

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CQP-1001-F07 (02)



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Sample No. : AYAA25-47442.001

Sample Description : Sn Plating layer

Item No./Part No. : N/A

Materials : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5 : 2013, by ICP-OES	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321-5 : 2013, by ICP-OES	5	36.1
Mercury (Hg)	mg/kg	With reference to IEC 62321-4 : 2013+AMD1:2017CSV, by ICP-OES	2	N.D.
Hexavalent Chromium (Cr VI)++	µg/cm ²	With reference to IEC 62321-7-1 : 2015, by UV-Vis	0.1	N.D.

Flame Retardants–PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Dibromobiphenyl	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Tribromobiphenyl	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Pentabromobiphenyl	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Hexabromobiphenyl	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Heptabromobiphenyl	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Octabromobiphenyl	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Nonabromobiphenyl	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Decabromobiphenyl	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.

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Sample No. : AYAA25-47442.001

Sample Description : Sn Plating layer

Item No./Part No. : N/A

Materials : N/A

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321-6 : 2015, by GC-MS	5	N.D.

Phthalates

Test Items	Unit	Test Method	MDL	Results
Di-isobutyl phthalate (DIBP)	mg/kg	With reference to IEC 62321-8: 2017, by GC-MS	50	N.D.
Di-butyl phthalate (DBP)	mg/kg	With reference to IEC 62321-8: 2017, by GC-MS	50	N.D.
Benzyl butyl phthalate (BBP)	mg/kg	With reference to IEC 62321-8: 2017, by GC-MS	50	N.D.
Di-(2-ethylhexyl) phthalate (DEHP)	mg/kg	With reference to IEC 62321-8: 2017, by GC-MS	50	N.D.

NOTE: (1) N.D. = Not detected. (<MDL)

(2) mg/kg = ppm, ug/kg = ppb, mg/L = ppm

(3) MDL = Method Detection Limit

(4) - = No regulation

(5) ** = Qualitative analysis (No Unit)

(6) Negative = Undetectable / Positive = Detectable

(7) + = a. The result of Hexavalent Chromium (Cr(VI)) is "ND" as the result of Chromium (Cr) is "ND", and confirmation test of Hexavalent Chromium (Cr(VI)) is not required.

b. If the content of Total Chromium (Cr) is greater than the MDL of Hexavalent Chromium (Cr(VI)), it is the result of hexavalent Chromium by UV-VIS.

(8) ++= a. The sample is positive for Cr VI if the Cr VI concentration is greater than 0.13 ug/cm².

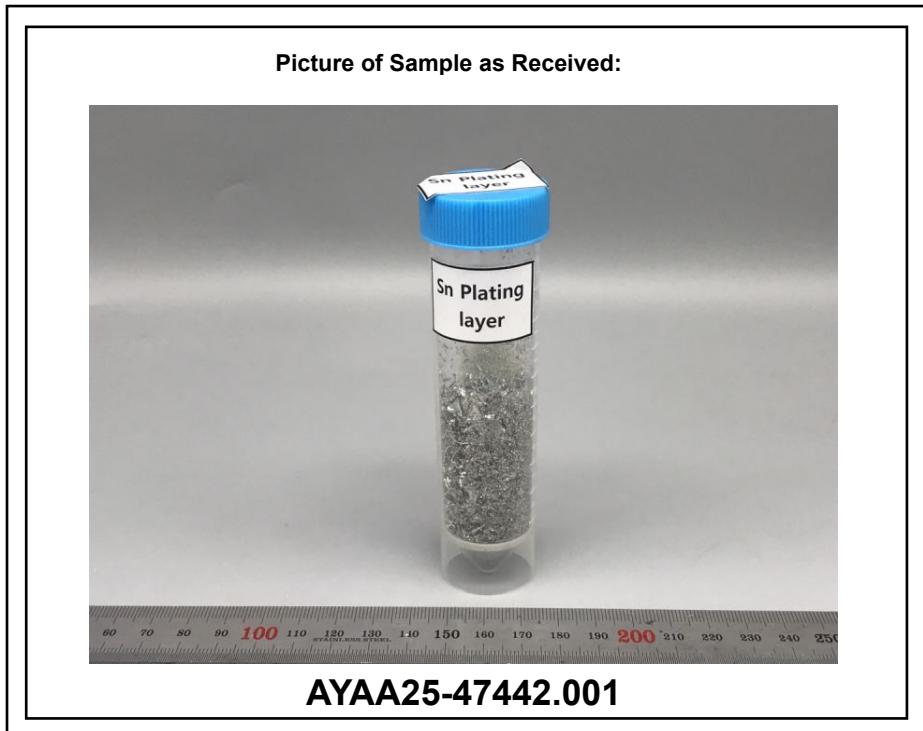
The sample coating is considered to contain Cr VI.

b. The sample is negative for Cr VI if Cr VI is ND(concentration less than 0.10 ug/cm²).

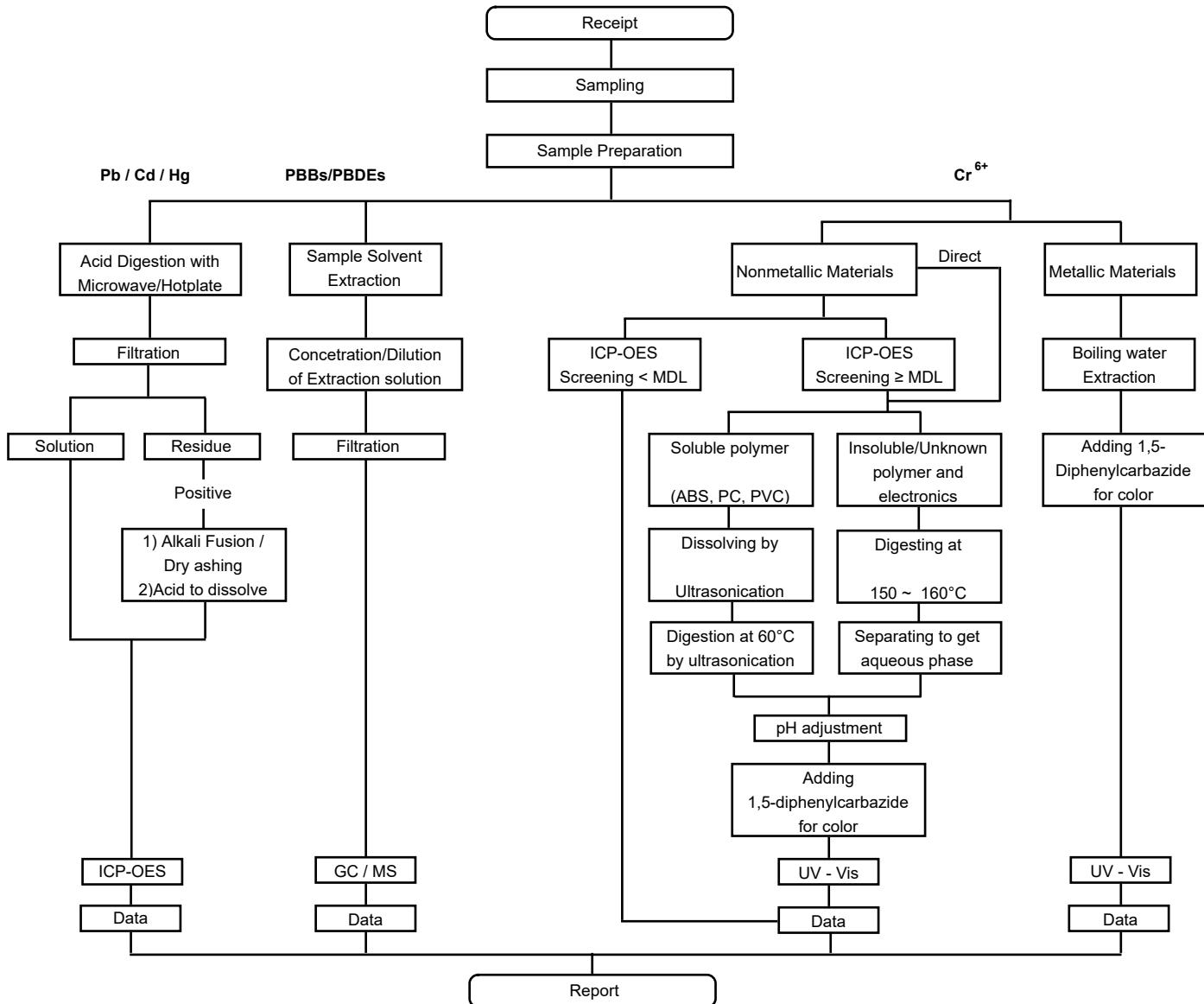
The coating is considered a non-Cr VI based coating.

c. The result between 0.10 ug/cm² and 0.13 ug/cm² is considered to be inconclusive – unavoidable coating variations may influence the determination.

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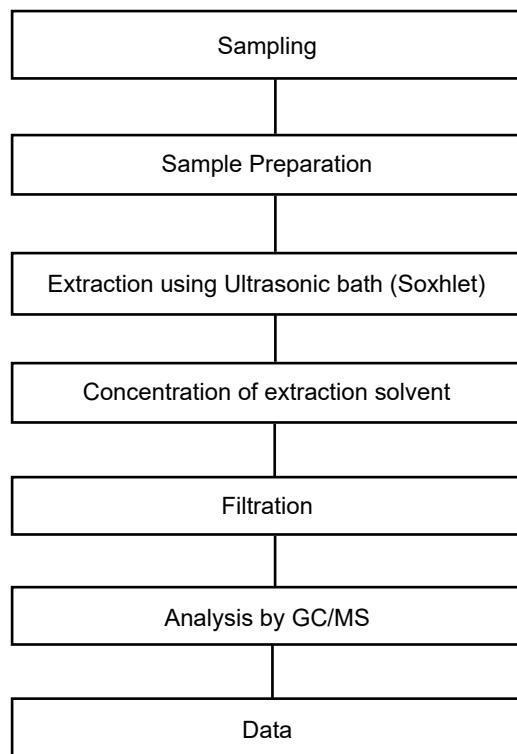


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Flow Chart for RoHS Pb / Cd / Hg / Cr⁶⁺ / PBBs&PBDEs Test


The samples were dissolved totally at the acid digestion step of the above flow chart for Cd, Pb, Hg.

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Flow Chart for IEC Phthalates***** End of Report *****

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