Test Report No. F690101/LF-CTSAYAA21-49662

Issued Date : 2021. 11. 26

DAE HEUNG IBN. CO., LTD.
367-49, Cheongo-ro Cheongbuk-eup
Pyeongtaek-si, Gyeonggi-do
Korea

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

SGS File No.	:	AYAA21-49662
Product Name	:	Biomass Plastic Container
Item No./Part No.	:	N/A
Received Date	:	2021. 11. 19
Test Period	:	2021. 11. 19 to 2021. 11. 26
Test Results	:	For further details, please refer to following page(s)

SGS Korea Co., Ltd.

Tommy Oh / Chemical Lab Mgr

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Sample No. : AYAA21-49662.001
Sample Description : Biomass Plastic Container
Item No./Part No. : N/A
Materials : HDPE+GEX(7:3)

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	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4 : 2013+A1 : 2017, by ICP-OES	2	N.D.
Hexavalent Chromium (Cr VI)*	mg/kg	With reference to IEC 62321-7-2 : 2017, by UV-Vis and/or with reference to IEC 62321-5 : 2013, by ICP-OES	8	N.D.

Total Metals

Test Items	Unit	Test Method	MDL	Results
Arsenic (As)	mg/kg	With reference to EPA 3052 : 1996, EPA 6010D : 2018, by ICP	10	N.D.
Chromium (Cr)	mg/kg	With reference to EPA 3052 : 1996, EPA 6010D : 2018, by ICP	5	N.D.
Copper (Cu)	mg/kg	With reference to EPA 3052 : 1996, EPA 6010D : 2018, by ICP	5	N.D.
Nickel (Ni)	mg/kg	With reference to EPA 3052 : 1996, EPA 6010D : 2018, by ICP	5	N.D.
Zinc (Zn)	mg/kg	With reference to EPA 3052 : 1996, EPA 6010D : 2018, by ICP	5	10.4

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.

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Sample No. : AYAA21-49662.001
Sample Description : Biomass Plastic Container
Item No./Part No. : N/A
Materials : HDPE+GEX(7:3)

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
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.
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-(2-ethylhexyl) phthalate (DEHP)	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-isobutyl phthalate (DIBP)	mg/kg	With reference to IEC 62321-8 : 2017, by GC-MS	50	N.D.
Di-isodecyl phthalate (DIDP)	mg/kg	With reference to IEC 62321-8 : 2017, by GC-MS	50	N.D.
Di-isononyl phthalate (DINP)	mg/kg	With reference to IEC 62321-8 : 2017, by GC-MS	50	N.D.
Di-n-octyl phthalate (DNOP)	mg/kg	With reference to IEC 62321-8 : 2017, by GC-MS	50	N.D.
Di-(2-ethylhexyl) adipate (DEHA)	mg/kg	With reference to IEC 62321-8 : 2017, by GC-MS	50	N.D.

Chlorinated Paraffin

Test Items	Unit	Test Method	MDL	Results
Alkanes, C10~13, Short Chain Chlorinated Paraffins(SCCP)	mg/kg	With reference to ISO 18219, by GC-MS(CI)	50	N.D.

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Sample No. : AYAA21-49662.001
Sample Description : Biomass Plastic Container
Item No./Part No. : N/A
Materials : HDPE+GEX(7:3)

Organotin Compounds

Test Items	Unit	Test Method	MDL	Results
Tributyltin (TBT)	mg/kg	with reference to ISO 17353, by GC/MS	1	N.D.
Triphenyltin (TPhT)	mg/kg	with reference to ISO 17353, by GC/MS	1	N.D.

Flame Retardants

Test Items	Unit	Test Method	MDL	Results
Tetrabromobisphenol A	mg/kg	With reference to US EPA 3540C, by GC-MS	10	N.D.
Hexabromocyclododecane (HBCDD)	mg/kg	With reference to USEPA 3540 C, by LC/MS	5	N.D.

NOTE:
(1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm, μg/kg = ppb, mg/L=ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) Negative = Undetectable / Positive = Detectable
(6) ** = Qualitative analysis (No Unit)
(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 Chromium (Cr) content is greater than the MDL of Hexavalent Chromium (Cr(VI)), confirmation test of Hexavalent Chromium (Cr(VI)) is required.
(8) The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
This test report is not related to Korea Laboratory Accreditation Scheme.

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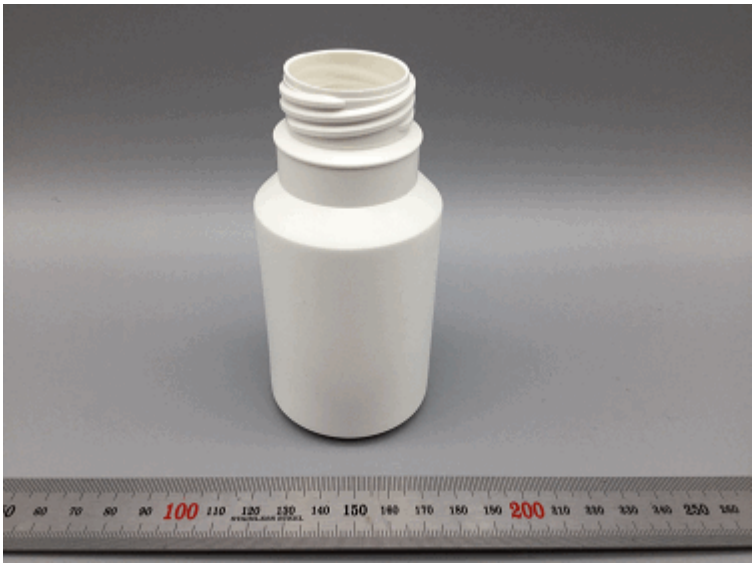
Picture of Sample as Received:



AYAA21-49662.001

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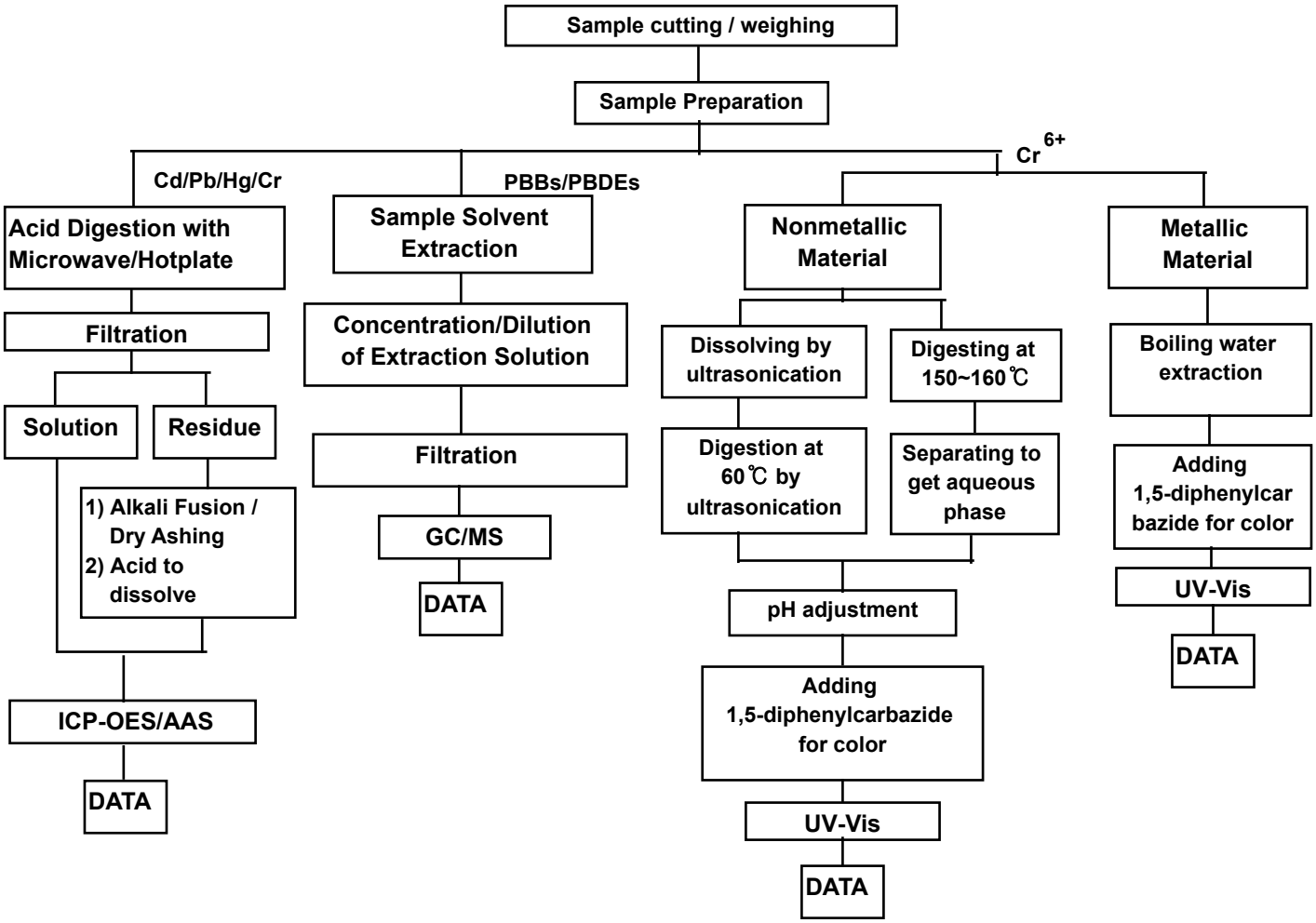
Testing Flow Chart for RoHS:Cd/Pb/Hg/Cr^{6+} /PBBs&PBDEs Testing



Section Chief : Timothy Jeon

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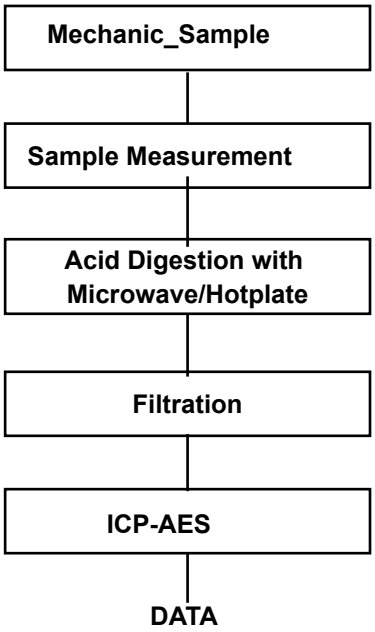
Flow Chart for Inorganic Elements Testing

Inorganic Elements



Major Inorganic Heavy Metals	Antimony(Sb) , Beryllium(Be) , Phosphorus(P) , Arsenic(As) etc.

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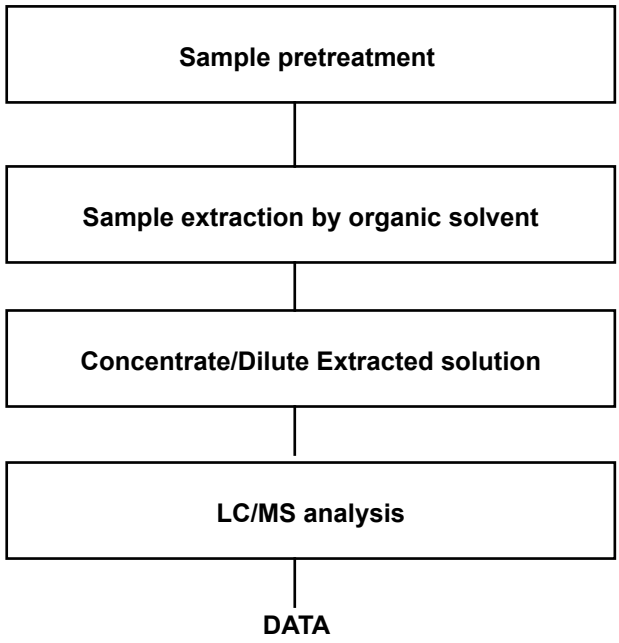
Testing Flow Chart for HBCD



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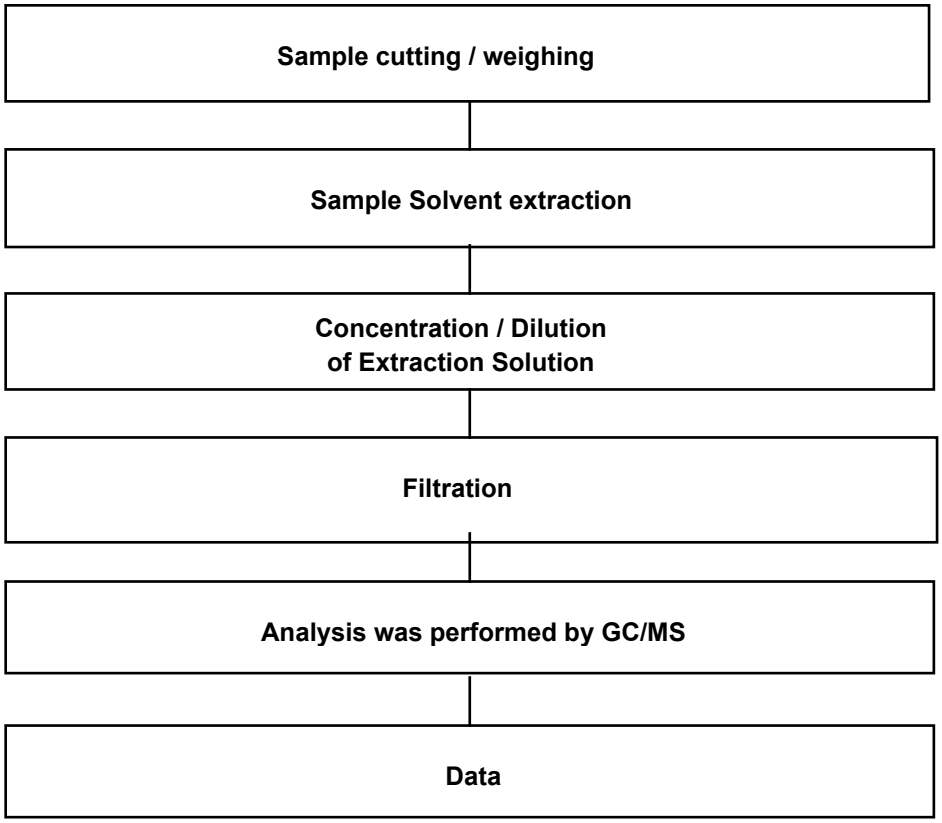
Flow Chart for PhthalateTest



*** End of Report ***

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