



# Test Report No. F690101/LF-CTSAYAA14-28378

Issued Date : 2014. 06. 11

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## POLYPLASTICS KOREA LTD.

#1015 Hanshin inter-valley24,Yeoksam-dong  
Gangnam-gu,Seoul  
Korea

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

**SGS File No.** : AYAA14-28378  
**Product Name** : LCP E473i VF2201  
**Item No./Part No.** : N/A  
**Received Date** : 2014. 06. 05  
**Test Period** : 2014. 06. 06 to 2014. 06. 11  
**Test Results** : For further details, please refer to following page(s)

SGS Korea Co., Ltd.

Jeff Jang / Chemical Lab Mgr

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Sample No. : AYAA14-28378.001  
Sample Description : LCP E473i VF2201  
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 62321:2013, ICP	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321:2013, ICP	5	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321:2013, ICP	2	N.D.
Hexavalent Chromium (Cr VI)	mg/kg	With reference to IEC 62321:2008, UV-VIS	1	N.D.
Antimony (Sb)	mg/kg	With reference to EPA 3052(1996), US EPA 6010B(1996), ICP	10	N.D.

## Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.

## Phthalates

Test Items	Unit	Test Method	MDL	Results
Di-(2-ethylhexyl) phthalate (DEHP)	mg/kg	With reference to ASTM D3421-75 , GC-MS	50	N.D.
Dibutyl phthalate (DBP)	mg/kg	With reference to ASTM D3421-75 , GC-MS	50	N.D.
Butylbenzyl phthalate (BBP)	mg/kg	With reference to ASTM D3421-75 , GC-MS	50	N.D.
Diisodecyl phthalate (DIDP)	mg/kg	With reference to ASTM D3421-75 , GC-MS	50	N.D.

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Sample No. : AYAA14-28378.001  
Sample Description : LCP E473i VF2201  
Item No./Part No. : N/A  
Materials : N/A

## Phthalates

Test Items	Unit	Test Method	MDL	Results
Diisononyl phthalate (DINP)	mg/kg	With reference to ASTM D3421-75 , GC-MS	50	N.D.
Di-n-octyl phthalate (DNOP)	mg/kg	With reference to ASTM D3421-75 , GC-MS	50	N.D.
Diisobutyl Phthalate (DIBP)	mg/kg	With reference to ASTM D3421-75 , GC-MS	50	N.D.
[di(C6-C8 alkyl)phthalate] branched (DIHP)	mg/kg	With reference to ASTM D3421-75 , GC-MS	50	N.D.
[di(C7-C11 alkyl)phthalate] linear+branched (DHNUP)	mg/kg	With reference to ASTM D3421-75 , GC-MS	50	N.D.
Bis(2-methoxyethyl) phthalate (BMP, DMEP)	mg/kg	With reference to ASTM D3421-75 , GC-MS	50	N.D.

## Halogen Content

Test Items	Unit	Test Method	MDL	Results
Bromine(Br)	mg/kg	BS EN 14582:2007 , IC	30	N.D.
Chlorine(Cl)	mg/kg	BS EN 14582:2007 , IC	30	N.D.

- NOTE:
- (1) N.D. = Not detected.(<MDL)
  - (2) mg/kg = ppm
  - (3) MDL = Method Detection Limit
  - (4) - = No regulation
  - (5) \*\* = Qualitative analysis (No Unit)
  - (6) \* = Boiling-water-extraction:  
Negative = Absence of CrVI coating  
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.
  - (7) Sb<sub>2</sub>O<sub>3</sub> : calculated from Sb by the equation =  $\{(121.760X_2 + 15.9994X_3)/(121.76X_2)\}XSb = 1.19713XSb$

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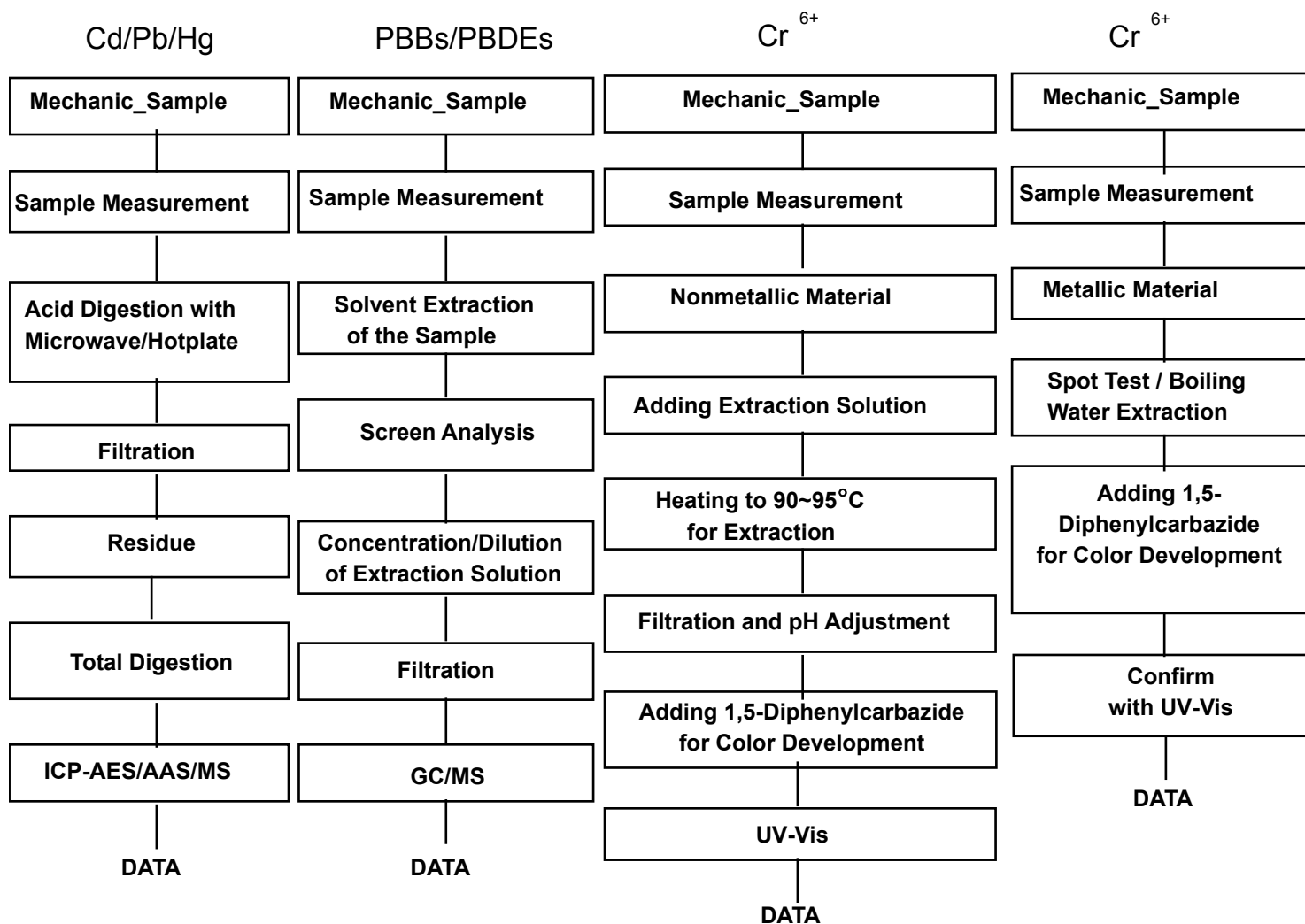
Picture of Sample as Received:



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**Testing Flow Chart for RoHS:Cd/Pb/Hg/Cr<sup>6+</sup> /PBBs&PBDEs Testing**

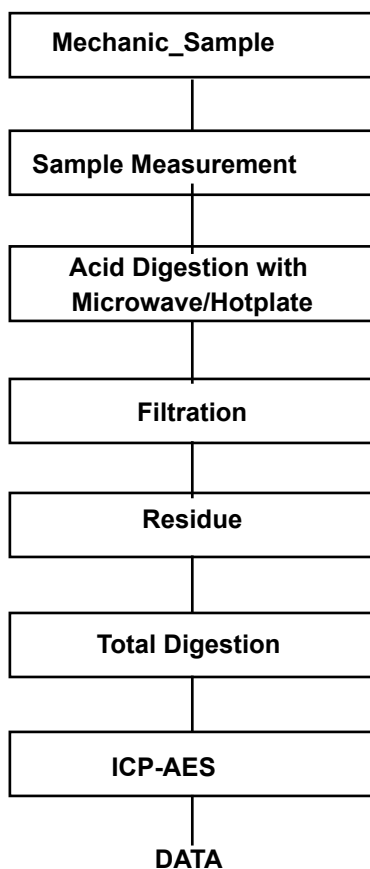


The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.  
Section Chief : Gilsae Yi



### Flow Chart for Inorganic Elements Testing

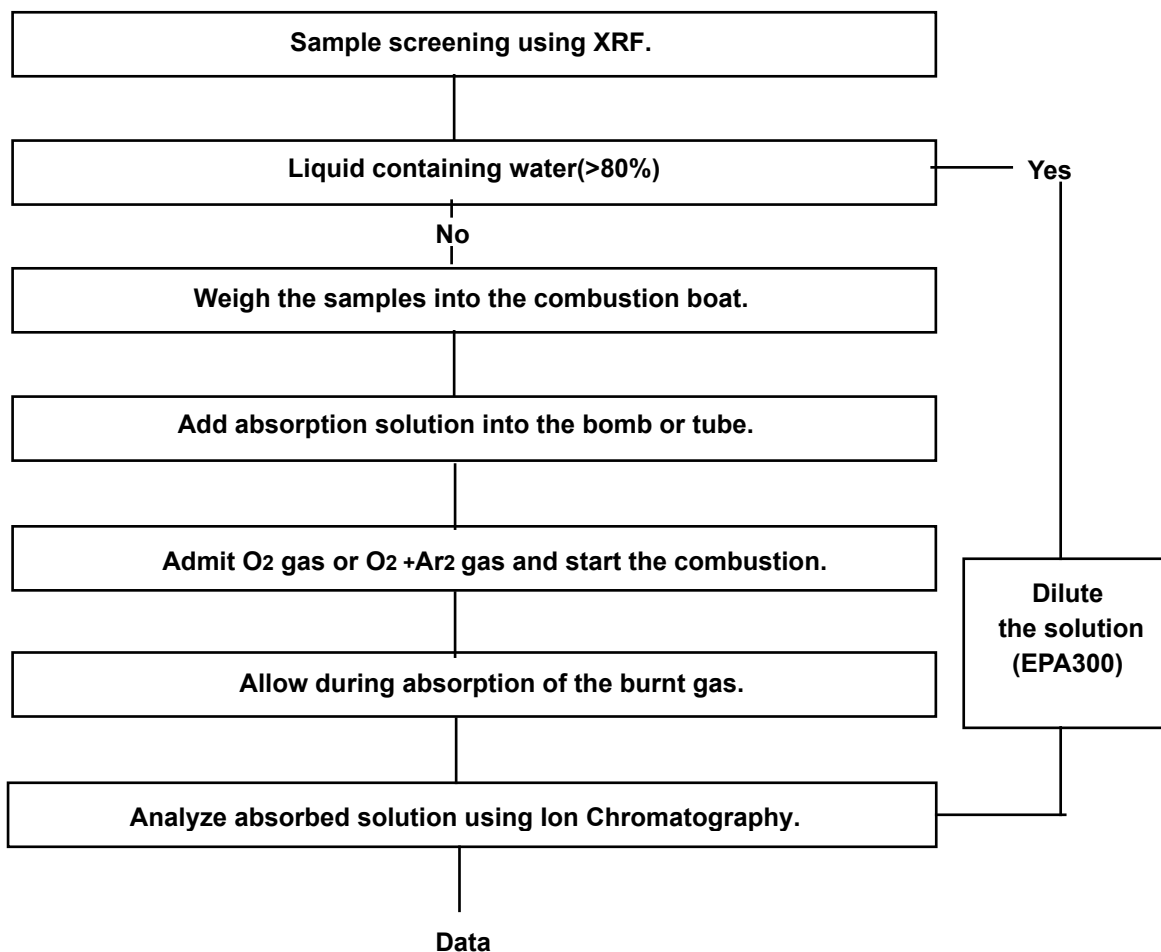
#### Inorganic Elements



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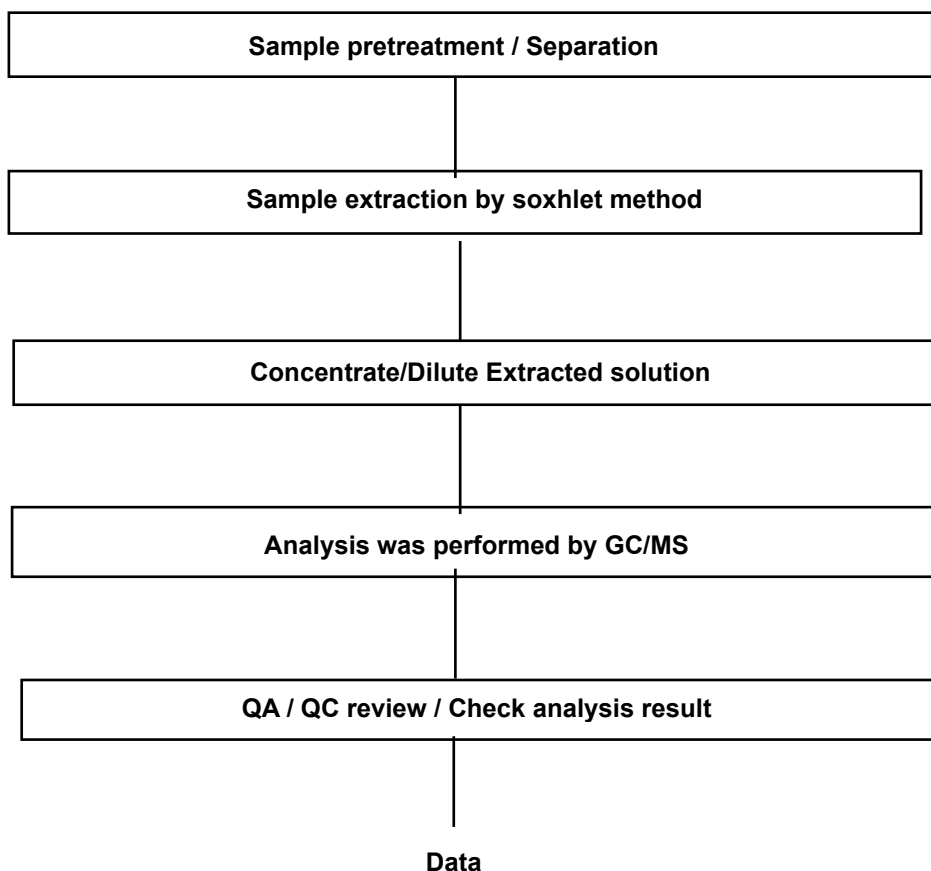


### Flow Chart for Halogen Test





### Flow Chart for Phthalate Test



\*\*\* End of Report \*\*\*