



# Test Report No. F690101/LF-CTSAYAA17-05346

Issued Date : 2017. 01. 24

Page 1 of 8

## KPM TECH CO., LTD.

122 Sandan-ro163Beon-gil, Danwon-gu  
Ansan-city, Gyeonggi-do  
Korea



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

**SGS File No.** : AYAA17-05346  
**Product Name** : MPN-5-A  
**Item No./Part No.** : N/A  
**Received Date** : 2017. 01. 19  
**Test Period** : 2017. 01. 19 to 2017. 01. 24  
**Conclusion** : The halogens on the test reports were performed with the water-diluted solution of the submitted sample, and the dilution ratio to water was one to one hundred.  
**Test Results** : For further details, please refer to following page(s)

SGS Korea Co., Ltd.

Jeff Jang / Chemical Lab Mgr

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# Test Report No. F690101/LF-CTSAYAA17-05346

Issued Date : 2017. 01. 24

Page 2 of 8

Sample No. : AYAA17-05346.001  
Sample Description : MPN-5-A  
Item No./Part No. : N/A  
Materials : Liquid

## Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to US EPA 3052(1996), US EPA 6010B(1996), ICP	0.5	N.D.
Mercury (Hg)	mg/kg	With reference to US EPA 3052(1996), US EPA 6010B(1996), ICP	2	N.D.
Lead (Pb)	mg/kg	With reference to US EPA 3052(1996), US EPA 6010B(1996), ICP	5	N.D.
Antimony (Sb)	mg/kg	With reference to EPA 3052(1996), US EPA 6010B(1996), ICP	10	N.D.
Tin (Sn)	mg/kg	With reference to EPA 3052(1996), US EPA 6010B(1996), ICP	10	N.D.
Hexavalent Chromium (Cr VI)	mg/kg	With reference to US EPA 3060A(1996), US EPA 7196A(1992), UV	1	N.D.

## Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Dibromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tribromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tetrabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Pentabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Hexabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Heptabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Octabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Nonabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Decabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Monobromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Dibromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tribromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tetrabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Pentabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.

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# Test Report No. F690101/LF-CTSAYAA17-05346

Issued Date : 2017. 01. 24

Page 3 of 8

Sample No. : AYAA17-05346.001  
Sample Description : MPN-5-A  
Item No./Part No. : N/A  
Materials : Liquid

## Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Hexabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Heptabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Octabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Nonabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Decabromodiphenyl ether	mg/kg	US EPA 3540C, 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 , GC/MS	50	N.D.
Di-butyl phthalate (DBP)	mg/kg	With reference to IEC 62321-8 , GC/MS	50	N.D.
Benzyl butyl phthalate (BBP)	mg/kg	With reference to IEC 62321-8 , GC/MS	50	N.D.
Di-isobutyl phthalate (DIBP)	mg/kg	With reference to IEC 62321-8 , GC/MS	50	N.D.

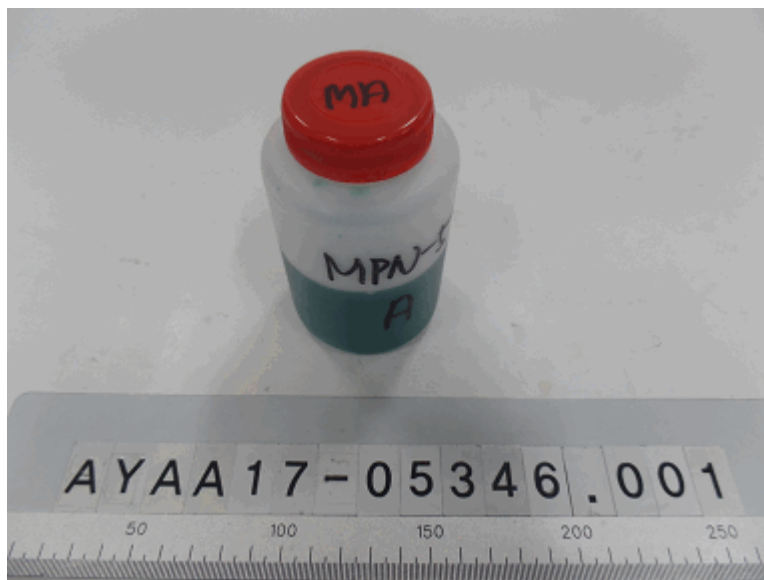
## Halogen Contents

Test Items	Unit	Test Method	MDL	Results
Bromide (Br-)	mg/L	US EPA300.0, IC	30	N.D.
Chloride (Cl-)	mg/L	US EPA300.0, 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) Negative = Undetectable / Positive = Detectable

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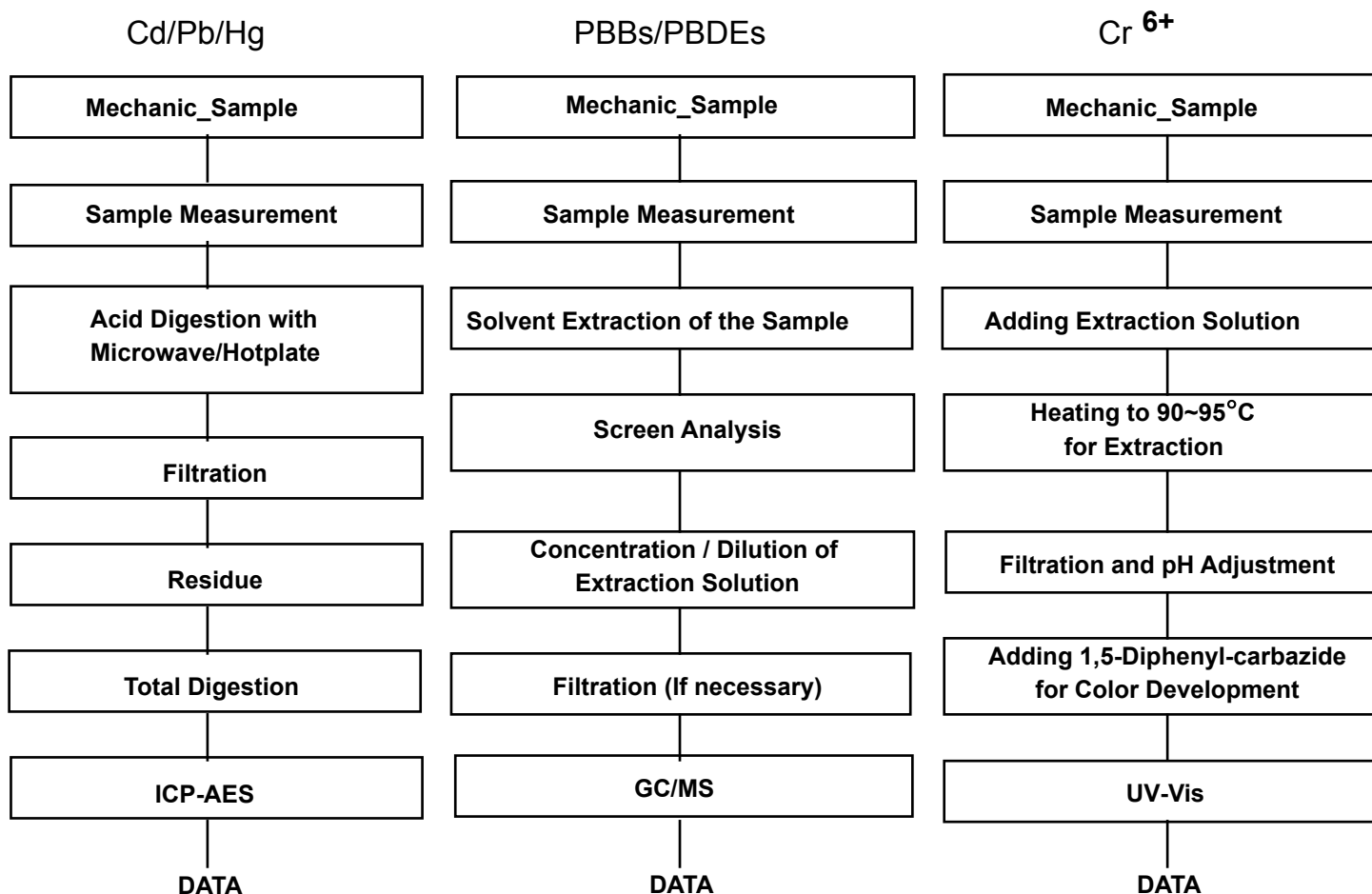
Picture of Sample as Received:



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



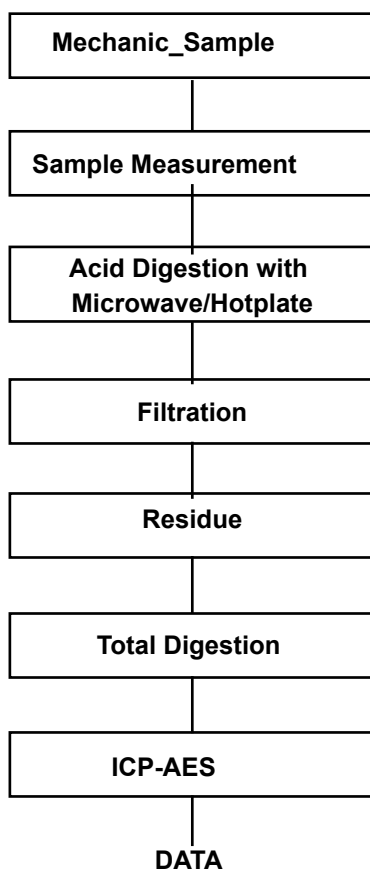
The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.

Section Chief : Gilsae Yi



### Flow Chart for Inorganic Elements Testing

#### Inorganic Elements

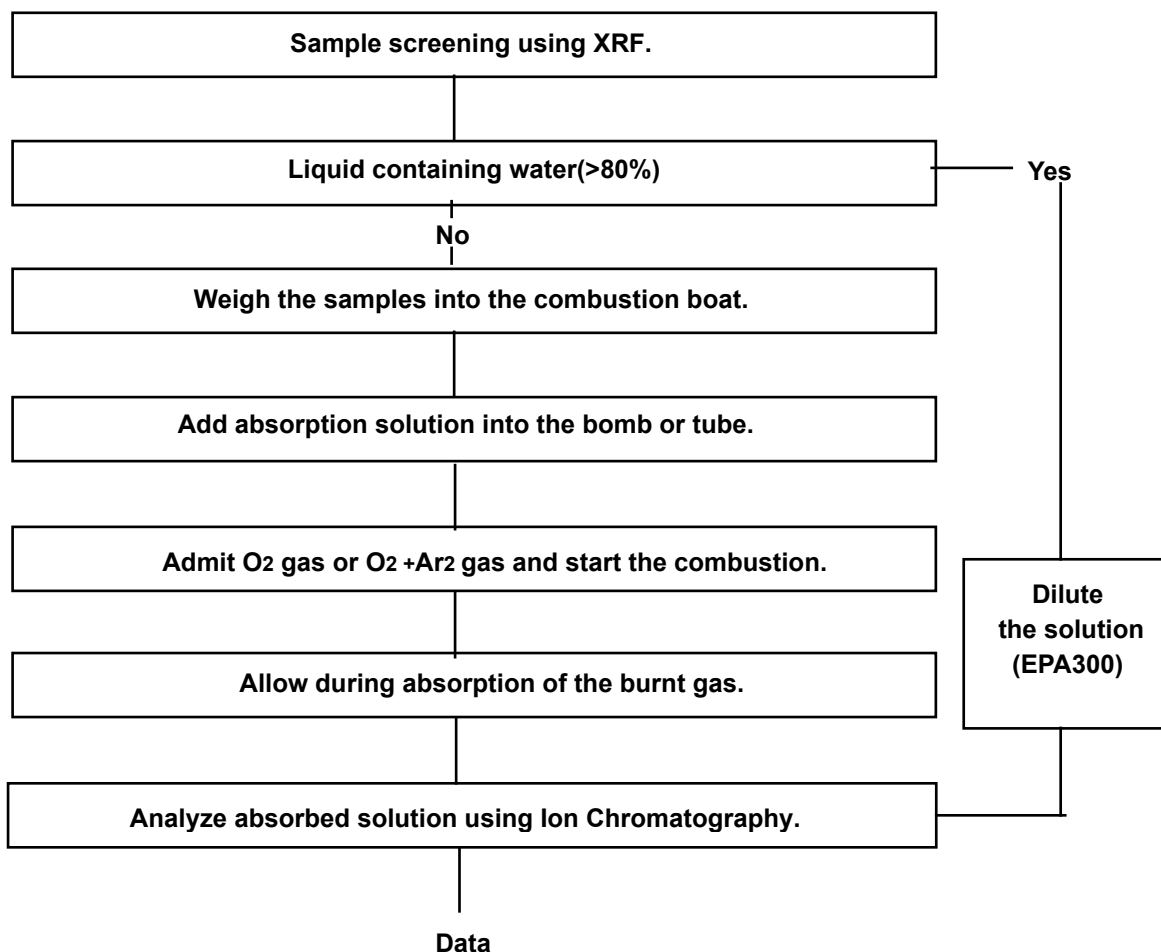


Major Inorganic Heavy Metals	Antimony(Sb) , Beryllium(Be) , Phosphorus(P) , Arsenic(As) etc.
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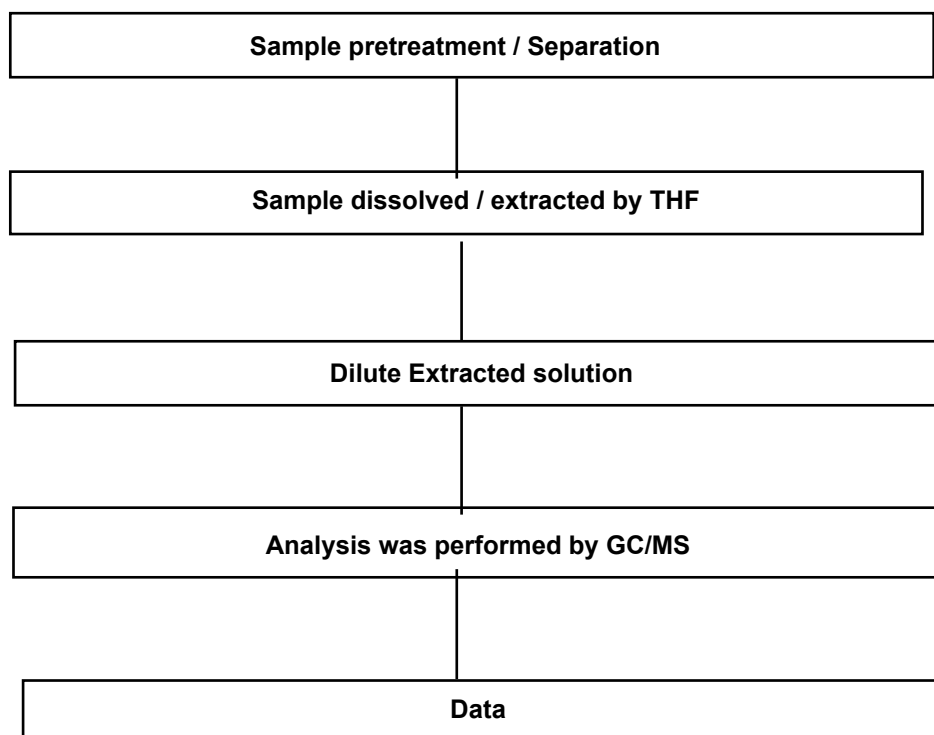
### Flow Chart for Halogen Test



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### Flow Chart for Phthalate Test



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

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