



# Test Report No. F690101/LF-CTSAYGA15-03243

Issued Date : 2015. 12. 02

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## YEONHO ELECTRONICS CO., LTD.

506-2,Hanam-dong  
Gwangsan-gu,Gwangju  
Korea

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

**SGS File No.** : AYGA15-03243  
**Product Name** : NYLON  
**Item No./Part No.** : N/A  
**Client Reference Data** : 2413GW2 NC, 2413GW2 RE, 2413GW2 BL, 2413GW2 BK, 2413GW2 YE  
**Received Date** : 2015. 11. 27  
**Test Period** : 2015. 11. 27 to 2015. 12. 02  
**Test Comments** : By the applicant's specific request, the sampling and testing was performed only for the part indicated in the photo without disassembly.  
**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)

SGS Korea Co., Ltd.

Jeff Jang / Chemical Lab Mgr

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Sample No. : AYGA15-03243.001  
Sample Description : NYLON  
Item No./Part No. : N/A  
Materials : NYLON

## Heavy Metals

| Test Items                  | Unit  | Test Method   | MDL | Results |
|-----------------------------|-------|---|-----|---------|
| Cadmium (Cd)                | mg/kg | With reference to IEC 62321-5:2013<br>(Determination of Cadmium by ICP-OES)   | 0.5 | N.D.    |
| Lead (Pb)                   | mg/kg | With reference to IEC 62321-5:2013<br>(Determination of Lead by ICP-OES)  | 5   | 8.23    |
| Mercury (Hg)                | mg/kg | With reference to IEC 62321-4:2013<br>(Determination of Mercury by ICP-OES)   | 2   | N.D.    |
| Hexavalent Chromium (Cr VI) | mg/kg | With reference to IEC 62321:2008 (Determination<br>of Hexavalent Chromium by spot test/Colorimetric<br>Method using UV-Vis) | 1   | N.D.    |
| Antimony (Sb)               | mg/kg | With reference to EPA 3052(1996), US EPA<br>6010B(1996), ICP  | 10  | 52500   |

## Flame Retardants-PBBs/PBDEs

| Test Items              | Unit  | Test Method  | MDL | Results |
|-------------------------|-------|--|-----|---------|
| Monobromobiphenyl       | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Dibromobiphenyl         | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Tribromobiphenyl        | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Tetrabromobiphenyl      | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Pentabromobiphenyl      | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Hexabromobiphenyl       | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Heptabromobiphenyl      | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Octabromobiphenyl       | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Nonabromobiphenyl       | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Decabromobiphenyl       | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Monobromodiphenyl ether | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Dibromodiphenyl ether   | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Tribromodiphenyl ether  | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |

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**Sample No.** : AYGA15-03243.001  
**Sample Description** : NYLON  
**Item No./Part No.** : N/A  
**Materials** : NYLON

**Flame Retardants-PBBs/PBDEs**

| Test Items               | Unit  | Test Method  | MDL | Results |
|--------------------------|-------|--|-----|---------|
| Tetrabromodiphenyl ether | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Pentabromodiphenyl ether | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Hexabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Heptabromodiphenyl ether | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Octabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Nonabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |
| Decabromodiphenyl ether  | mg/kg | With reference to IEC 62321-6:2015<br>(Determination of PBBs and PBDEs by GC-MS) | 5   | N.D.    |

**Phthalates**

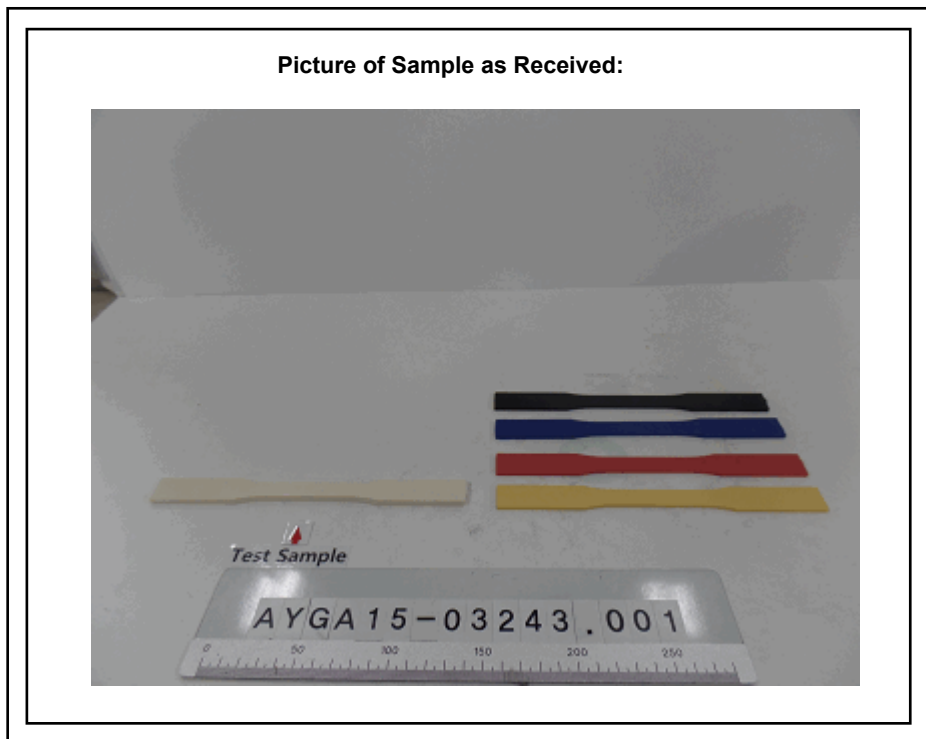
| Test Items  | Unit  | Test Method                         | MDL | Results |
|---|-------|-------------------------------------|-----|---------|
| Di-(2-ethylhexyl) phthalate (DEHP)                      | mg/kg | With reference to EPA 8061A , GC/MS | 50  | N.D.    |
| Di-butyl phthalate (DBP)                                | mg/kg | With reference to EPA 8061A , GC/MS | 50  | N.D.    |
| Benzyl butyl phthalate (BBP)                            | mg/kg | With reference to EPA 8061A , GC/MS | 50  | N.D.    |
| Di-isodecyl phthalate (DIDP)                            | mg/kg | With reference to EPA 8061A , GC/MS | 50  | N.D.    |
| Di-isononyl phthalate (DINP)                            | mg/kg | With reference to EPA 8061A , GC/MS | 50  | N.D.    |
| Di-n-octyl phthalate (DNOP)                             | mg/kg | With reference to EPA 8061A , GC/MS | 50  | N.D.    |
| Di-isobutyl phthalate (DIBP)                            | mg/kg | With reference to EPA 8061A , GC/MS | 50  | N.D.    |
| [di(C7-C11 alkyl)phthalate] linear and branched (DHNUP) | mg/kg | With reference to EPA 8061A , GC/MS | 50  | N.D.    |
| [di(C6-C8 alkyl)phthalate] branched (DIHP)              | mg/kg | With reference to EPA 8061A , GC/MS | 50  | N.D.    |
| Bis(2-methoxyethyl) phthalate (BMP, BMEP, DMEP)         | mg/kg | With reference to EPA 8061A , GC/MS | 50  | N.D.    |

**Halogen Content**

| Test Items   | Unit  | Test Method                    | MDL | Results |
|--------------|-------|--------------------------------|-----|---------|
| Bromine(Br)  | mg/kg | With reference to EN 14582, IC | 30  | 81000   |
| Chlorine(Cl) | mg/kg | With reference to EN 14582, IC | 30  | 1620    |

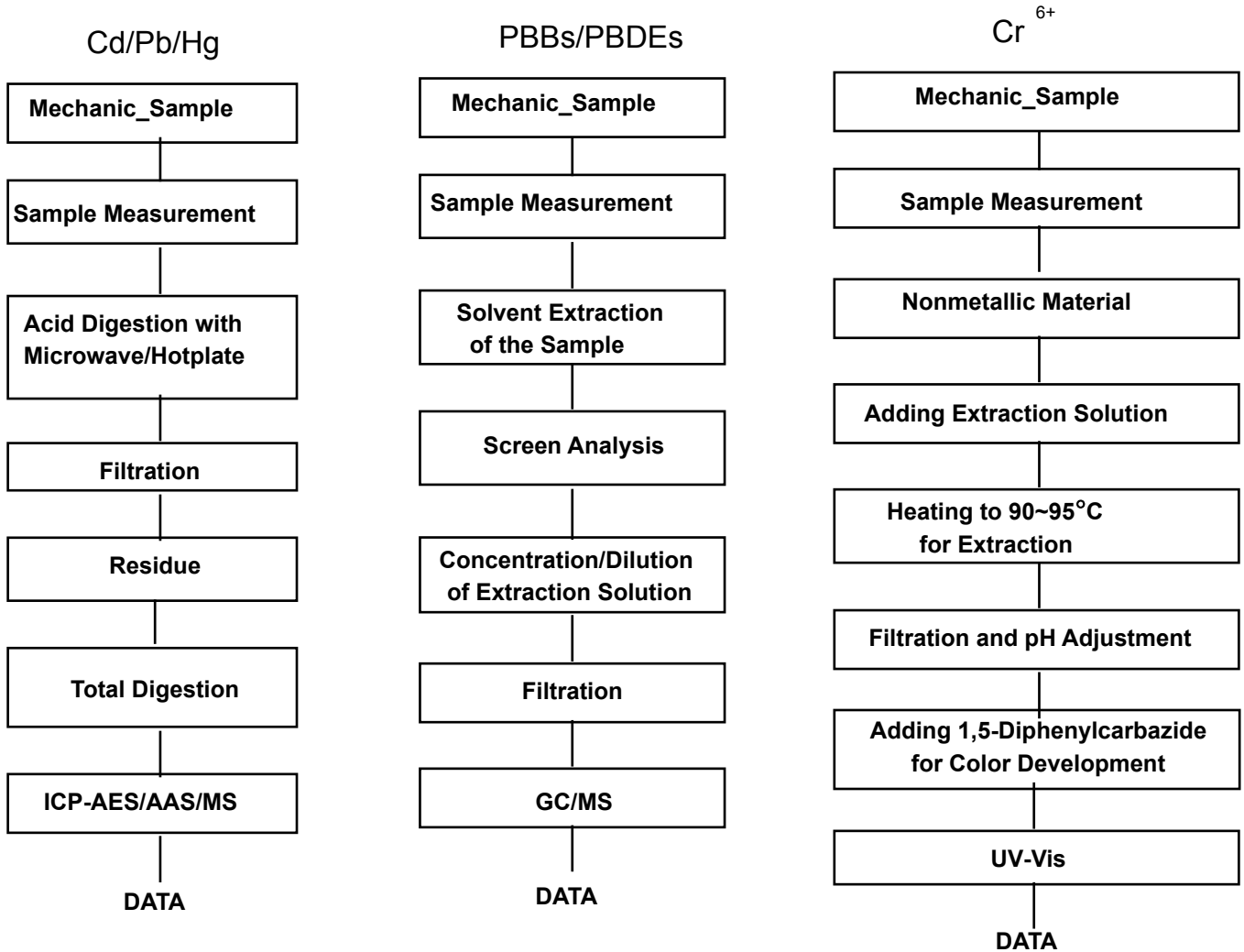
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- NOTE:
- (1) N.D. = Not detected.(<MDL)
  - (2) mg/kg = ppm
  - (3) MDL = Method Detection Limit
  - (4) - = No regulation
  - (5) Negative = Undetectable / Positive = Detectable
  - (6) \*\* = Qualitative analysis (No Unit)
  - (7) \* = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 ug/cm<sup>2</sup>. The sample coating is considered to contain CrVI.  
 b. The sample is negative for CrVI if CrVI is n.d. (concentration less than 0.10 ug/cm<sup>2</sup>). The coating is considered a non-CrVI based coating.  
 c. The result between 0.10 ug/cm<sup>2</sup> and 0.13 ug/cm<sup>2</sup> is considered to be inconclusive - unavoidable coating variations may influence the determination.



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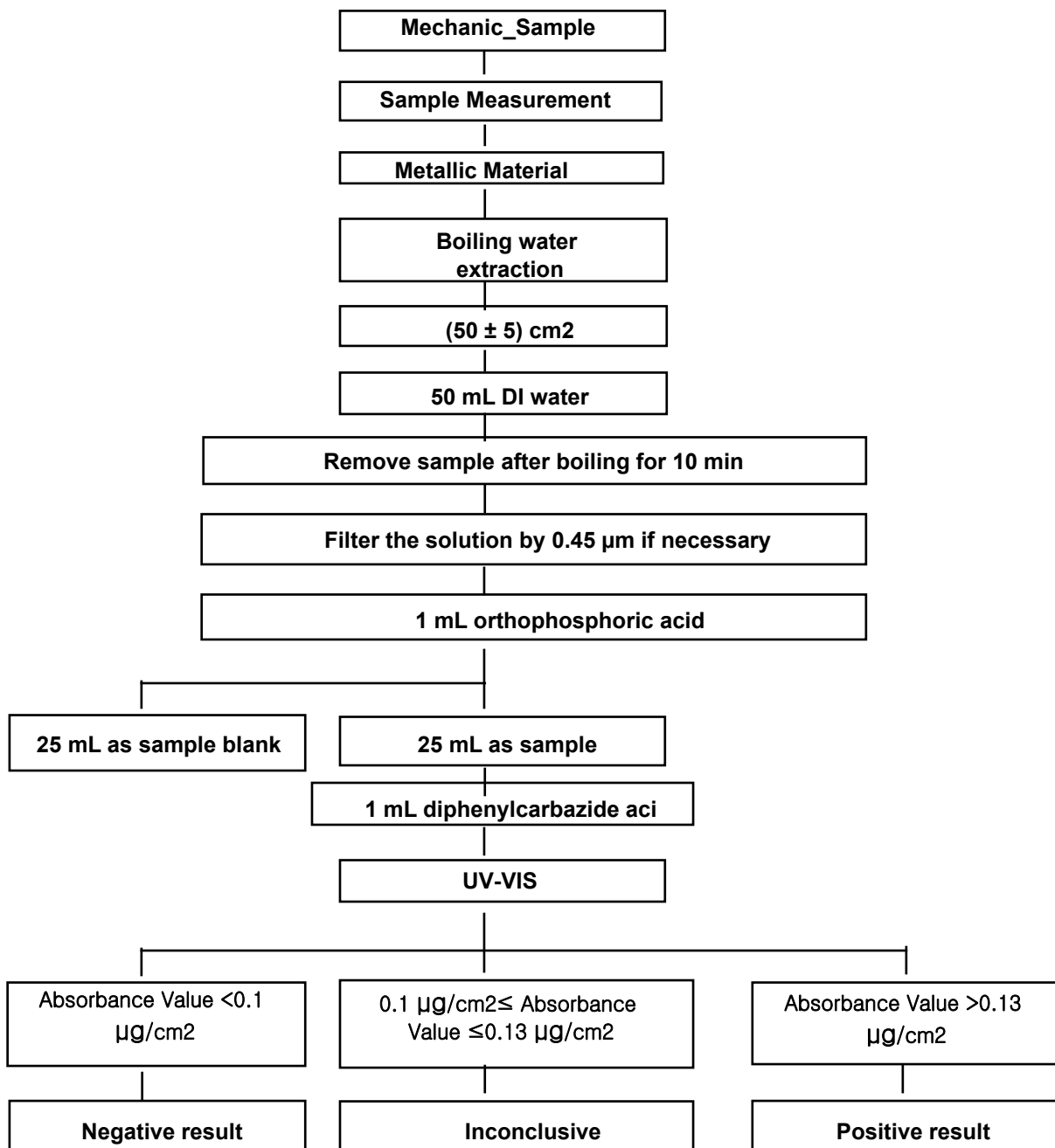
**Testing Flow Chart for RoHS: Cd/Pb/Hg/Cr<sup>6+</sup> /PBBs&PBDEs Testing**



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

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**Cr<sup>6+</sup>**

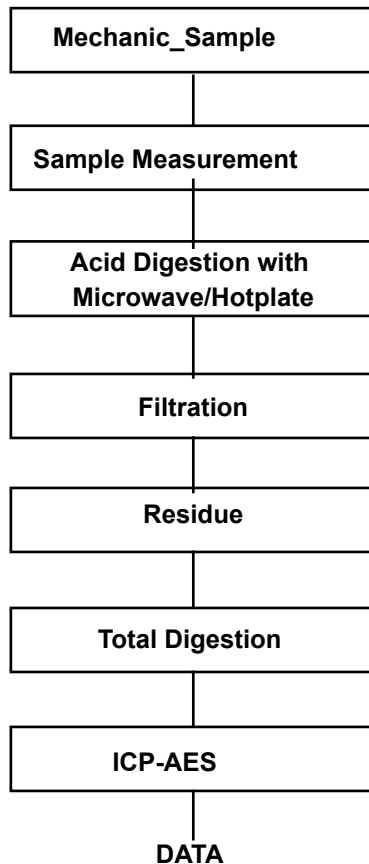


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### Flow Chart for Inorganic Elements Testing

#### Inorganic Elements

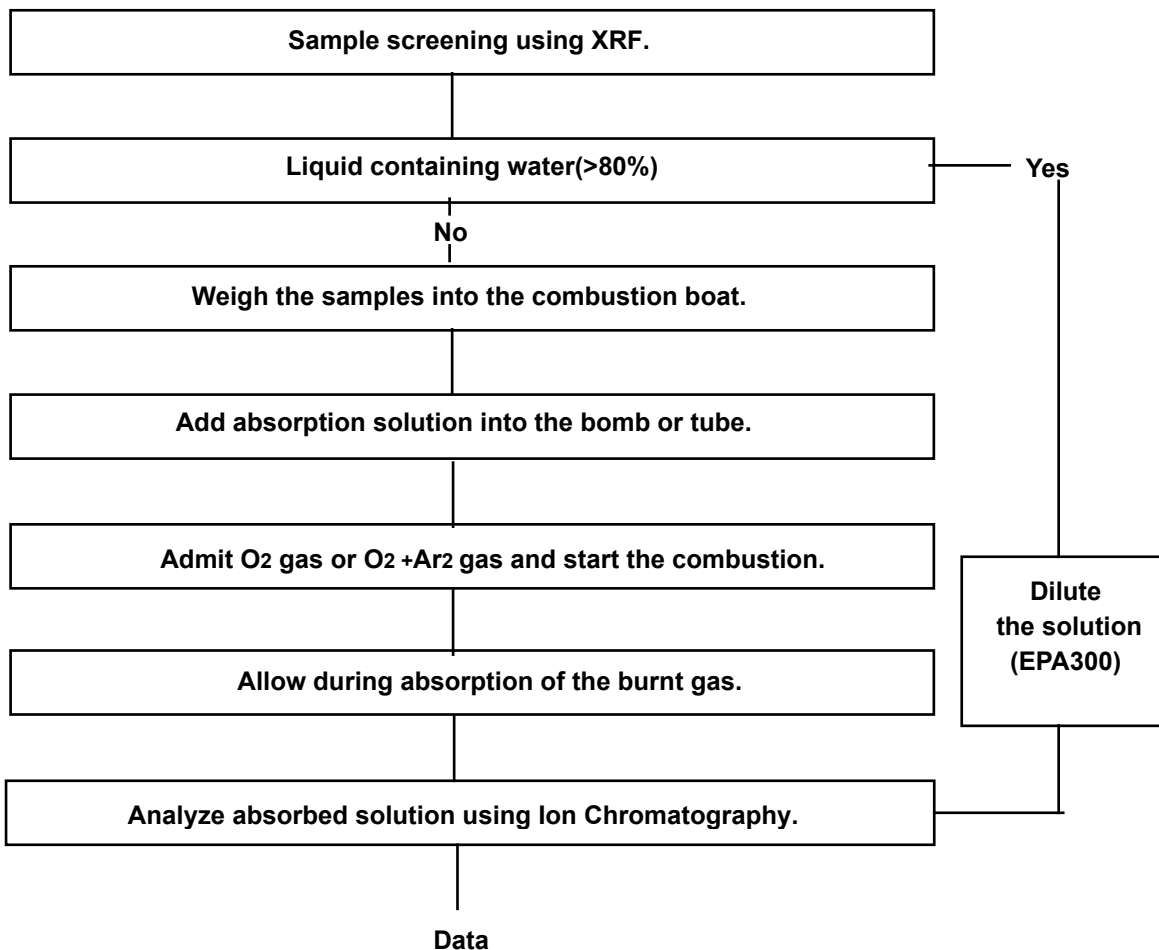


|                              |   |
|------------------------------|---|
| Major Inorganic Heavy Metals | Antimony(Sb) , Beryllium(Be) , Phosphorus(P) , Arsenic(As) etc. |
|------------------------------|---|

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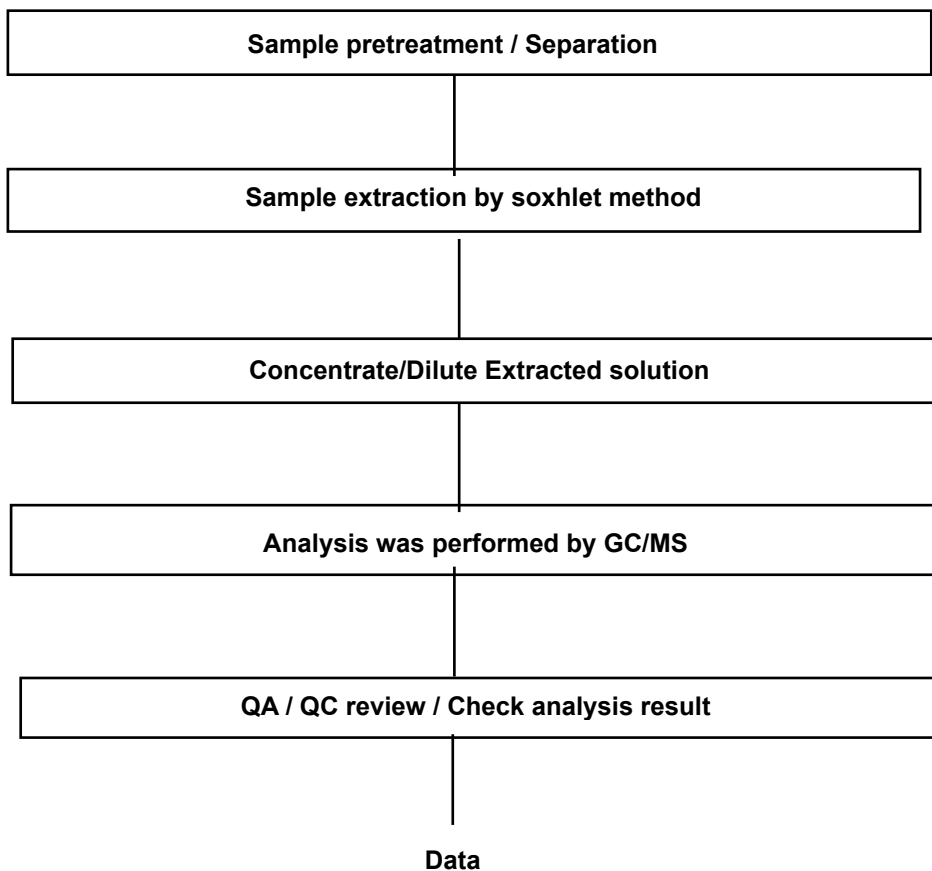
### Flow Chart for Halogen Test



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### Flow Chart for Phthalate Test



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

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