

Test Report

No.: CANEC23009819701

Date: Sep 22, 2023

Page 1 of 12

Client Name: SHENGYI TECHNOLOGY CO.,LTD.

Client Address: NO.5, WEST INDUSTRY ROAD, SONGSHAN LAKE, DONGGUAN, GUANGDONG PROVINCE

Sample Name: The Halogen Free Copper Clad Laminate

Model No.: S1150G

The above sample(s) and information were provided by the client.

SGS Job No.: GZP23-012654

Sample Receiving Date: Sep 13, 2023

Testing Period: Sep 13, 2023 ~ Sep 21, 2023

Test Requested: Select test(s) as requested by the client.

Test Method(s): Please refer to next page(s).

Test Result(s): Please refer to next page(s).

| Test Requirement | Conclusion |
|--|-------------|
| EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) | Pass |
| Perfluorooctane Sulfonates (PFOS) and its derivatives and Perfluorooctanoic Acid (PFOA) and its salts | See Results |
| Halogen | See Results |
| Element(s) | See Results |
| Flame Retardants | See Results |
| Phthalates | See Results |

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Arsene Ye

Arsene Ye
Approved Signatory

scan to see the report



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SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch, Chemical Laboratory.

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Test Result(s):

Test Part Description:

| SN ID | Sample No. | SGS Sample ID | Description |
|-------|------------|-------------------------|----------------------------------|
| SN1 | A1 | CAN23-0098197-0001.C001 | Double-side copper-clad laminate |

Remarks:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) “-” = Not Regulated

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analysis was performed by ICP-OES, UV-Vis and GC-MS.

| Test Item(s) | Limit | Unit(s) | MDL | A1 |
|------------------------------------|-------|---------|-----|----|
| Cadmium(Cd) | 100 | mg/kg | 2 | ND |
| Lead (Pb) | 1000 | mg/kg | 2 | 4 |
| Mercury (Hg) | 1000 | mg/kg | 2 | ND |
| Hexavalent Chromium (Cr(VI)) | 1000 | mg/kg | 8 | ND |
| Polybromobiphenyl (PBBs) | 1000 | mg/kg | - | ND |
| Monobromobiphenyl (MonoBB) | - | mg/kg | 5 | ND |
| Dibromobiphenyl (DiBB) | - | mg/kg | 5 | ND |
| Tribromobiphenyl (TriBB) | - | mg/kg | 5 | ND |
| Tetrabromobiphenyl (TetraBB) | - | mg/kg | 5 | ND |
| Pentabromobiphenyl (PentaBB) | - | mg/kg | 5 | ND |
| Hexabromobiphenyl (HexaBB) | - | mg/kg | 5 | ND |
| Heptabromobiphenyl (HeptaBB) | - | mg/kg | 5 | ND |
| Octabromobiphenyl (OctaBB) | - | mg/kg | 5 | ND |
| Nonabromobiphenyl (NonaBB) | - | mg/kg | 5 | ND |
| Decabromobiphenyl (DecaBB) | - | mg/kg | 5 | ND |
| Polybromodiphenyl ether(PBDEs) | 1000 | mg/kg | - | ND |
| Monobromodiphenylether (MonoBDE) | - | mg/kg | 5 | ND |
| Dibromodiphenylether (DiBDE) | - | mg/kg | 5 | ND |
| Tribromodiphenylether (TriBDE) | - | mg/kg | 5 | ND |
| Tetrabromodiphenylether (TetraBDE) | - | mg/kg | 5 | ND |
| Pentabromodiphenylether (PentaBDE) | - | mg/kg | 5 | ND |
| Hexabromodiphenylether (HexaBDE) | - | mg/kg | 5 | ND |
| Heptabromodiphenylether (HeptaBDE) | - | mg/kg | 5 | ND |
| Octabromodiphenylether (OctaBDE) | - | mg/kg | 5 | ND |
| Nonabromodiphenylether (NonaBDE) | - | mg/kg | 5 | ND |
| Decabromodiphenylether (DecaBDE) | - | mg/kg | 5 | ND |
| Dibutyl Phthalate(DBP) | 1000 | mg/kg | 50 | ND |
| Butyl Benzyl Phthalate(BBP) | 1000 | mg/kg | 50 | ND |



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Test Report

No.: CANEC23009819701

Date: Sep 22, 2023

Page 3 of 12

| Test Item(s) | Limit | Unit(s) | MDL | A1 |
|------------------------------------|-------|---------|-----|----|
| Bis-(2-ethylhexyl) Phthalate(DEHP) | 1000 | mg/kg | 50 | ND |
| Diisobutyl Phthalate(DIBP) | 1000 | mg/kg | 50 | ND |

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series.
- (3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

Perfluorooctane Sulfonates (PFOS) and its derivatives and Perfluorooctanoic Acid (PFOA) and its salts

Test Method: With reference to CEN/TS 15968:2010, analysis was performed by HPLC-MS or LC-MS/MS.

| Test Item(s) | CAS No. | Unit(s) | MDL | A1 |
|---|------------|---------|-------|----|
| PFOS and its derivatives | - | mg/kg | - | ND |
| Perfluorooctane Sulfonates (PFOS) and its salts* | - | mg/kg | 0.010 | ND |
| N-ethylperfluoro-1-octanesulfonamide (N-EtFOSA) | 4151-50-2 | mg/kg | 0.010 | ND |
| N-methylperfluoro-1-octanesulfonamide (N-MeFOSA) | 31506-32-8 | mg/kg | 0.010 | ND |
| 2-(N-ethylperfluoro-1-octanesulfonamido) -ethanol (N-EtFOSE) | 1691-99-2 | mg/kg | 0.010 | ND |
| 2-(N-methylperfluoro-1-octanesulfonamido) -ethanol (N-MeFOSE) | 24448-09-7 | mg/kg | 0.010 | ND |
| Perfluorooctane Sulfonamide (PFOSA) | 754-91-6 | mg/kg | 0.010 | ND |
| Perfluorooctanoic Acid (PFOA) and its salts* | - | mg/kg | 0.010 | ND |

Notes:

- (1) Perfluorooctanoic acid (PFOA) and its salts* including PFOA (CAS No. 335-67-1), APFO (CAS No. 3825-26-1), PFOA-Na (CAS No. 335-95-5), PFOA-K (CAS No. 2395-00-8), PFOA-Ag (CAS No. 335-93-3) and PFOA-F (CAS No. 335-66-0). The result of PFOA is used to represent PFOA and its salts.
- (2) Perfluorooctane sulfonates (PFOS) and its salts* including PFOS (CAS No. 1763-23-1), POSF(CAS No. 307-35-7), PFOS-K (CAS No. 2795-39-3), PFOS-NH₄ (CAS No. 29081-56-9), PFOS-N(C₁₀H₂₁)₂(CH₃)₂ (CAS No. 251099-16-8), PFOS-NH₂(C₂H₄OH)₂ (CAS No. 70225-14-8), PFOS-Li (CAS No. 29457-72-5), PFOS-N(C₂H₅)₄ (CAS No. 56773-42-3) and PFOS-Na (CAS No. 4021-47-0). The result of PFOS is used to represent PFOS and its salts.

Halogen

Test Method: With reference to EN 14582:2016, analysis was performed by IC.



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| Test Item(s) | Unit(s) | MDL | A1 |
|--------------|---------|-----|-----|
| Fluorine(F) | mg/kg | 20 | 384 |
| Chlorine(Cl) | mg/kg | 50 | 204 |
| Bromine(Br) | mg/kg | 50 | ND |
| Iodine(I) | mg/kg | 50 | ND |

Element(s)

Test Method: With reference to US EPA 3052:1996, analysis was performed by ICP-OES/AAS.

| Test Item(s) | Unit(s) | MDL | A1 |
|---------------|---------|-----|----|
| Beryllium(Be) | mg/kg | 5 | ND |
| Antimony(Sb) | mg/kg | 10 | ND |

Flame Retardants

Test Method: With reference to US EPA 3550C:2007 and US EPA 8270D:2014, analysis was performed by GC-MS.

| Test Item(s) | CAS No. | Unit(s) | MDL | A1 |
|--------------------------------|--|---------|-----|----|
| Hexabromocyclododecane (HBCDD) | 134237-50-6 /134237-51-7 /134237-52-8 /25637-99-4 /3194-55-6 | mg/kg | 5 | ND |

Phthalates

Test Method: With reference to EN 14372:2004, analysis was performed by GC-MS.

| Test Item(s) | CAS No. | Unit(s) | MDL | A1 |
|-------------------------------------|---------------------------|---------|-------|----|
| Dibutyl Phthalate(DBP) | 84-74-2 | % | 0.003 | ND |
| Bis-(2-ethylhexyl) Phthalate(DEHP) | 117-81-7 | % | 0.003 | ND |
| Benzyl Butyl Phthalate(BBP) | 85-68-7 | % | 0.003 | ND |
| Diisononyl Phthalate (DINP) | 28553-12-0 /68515-48-0 | % | 0.010 | ND |
| Di-n-Octyl Phthalate(DNOP) | 117-84-0 | % | 0.003 | ND |
| Diisodecyl Phthalate (DIDP) | 26761-40-0 /68515-49-1 | % | 0.010 | ND |
| Dimethyl Phthalate(DMP) | 131-11-3 | % | 0.003 | ND |
| Diisobutyl Phthalate(DIBP) | 84-69-5 | % | 0.003 | ND |
| Dipentyl Phthalates (DnPP) | 131-18-0 | % | 0.003 | ND |
| Di-n-Hexyl Phthalate(DnHP) | 84-75-3 | % | 0.003 | ND |
| Bis(2-methoxyethyl)phthalate(DMEP) | 117-82-8 | % | 0.003 | ND |
| Diisopentyl Phthalate(DIPP) | 605-50-5 | % | 0.003 | ND |
| n-pentyl Isopentyl Phthalate(nPIPP) | 776297-69-9 | % | 0.003 | ND |



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Test Report

No.: CANEC23009819701

Date: Sep 22, 2023

Page 5 of 12

| Test Item(s) | CAS No. | Unit(s) | MDL | A1 |
|---|------------|---------|-------|----|
| 1,2-Benzenedicarboxylic Acid,di-C6-8-branched alkyl esters,C7-rich(DIHP) | 71888-89-6 | % | 0.010 | ND |
| 1,2-Benzenedicarboxylic Acid,Di-C7-11-Branched and Linear Alkyl Esters(DHNUP) | 68515-42-4 | % | 0.010 | ND |
| 1,2-Benzenedicarboxylic Acid,Dipentyl Ester,Branched and Linear | 84777-06-0 | % | 0.010 | ND |
| 1,2-benzenedicarboxylic Acid,dihexyl ester branched and linear(DHxP) | 68515-50-4 | % | 0.010 | ND |

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule ($w=0$) stated in ILAC-G8:09/2019.



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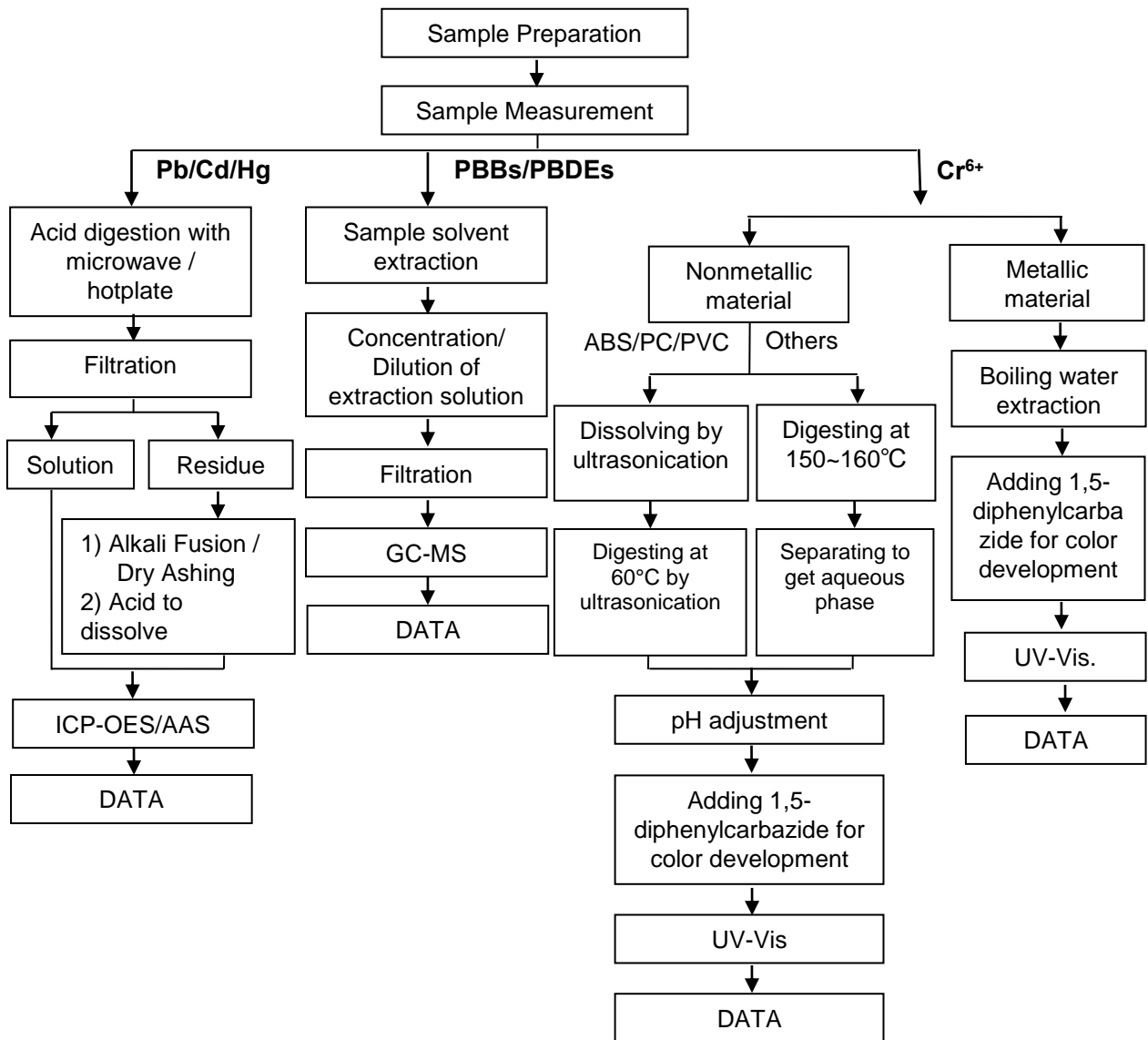
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Attachment:

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

- 1) Name of the person who made testing: Edith Zhang/Yam Chen/Judy Chen
- 2) Name of the person in charge of testing: Bella Wang/Qiong Liu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ and PBBs/PBDEs test method excluded).

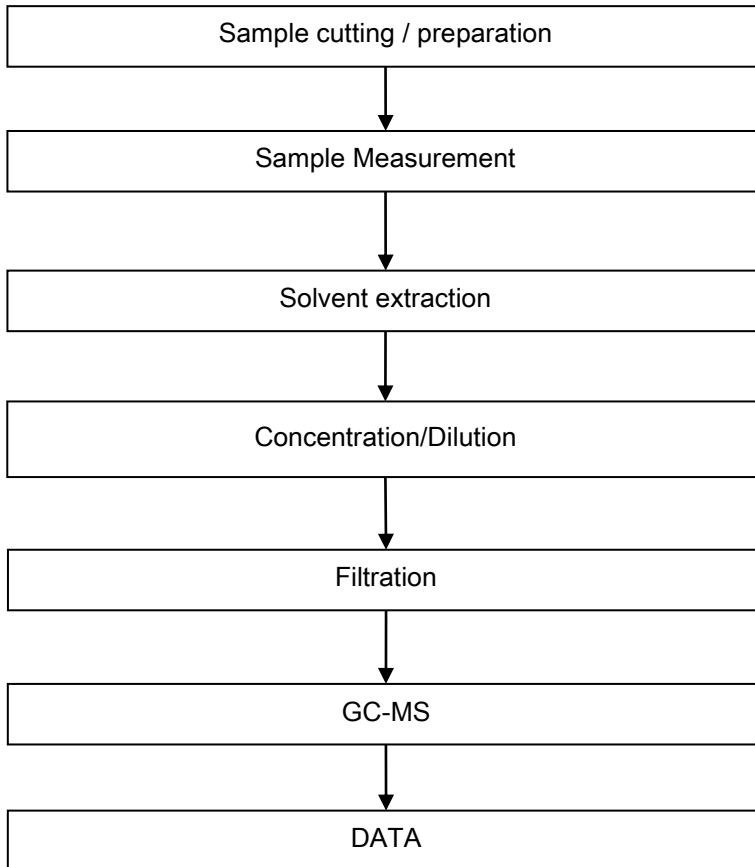


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Attachment:

Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Judy Chen
- 2) Name of the person in charge of testing: Qiong Liu

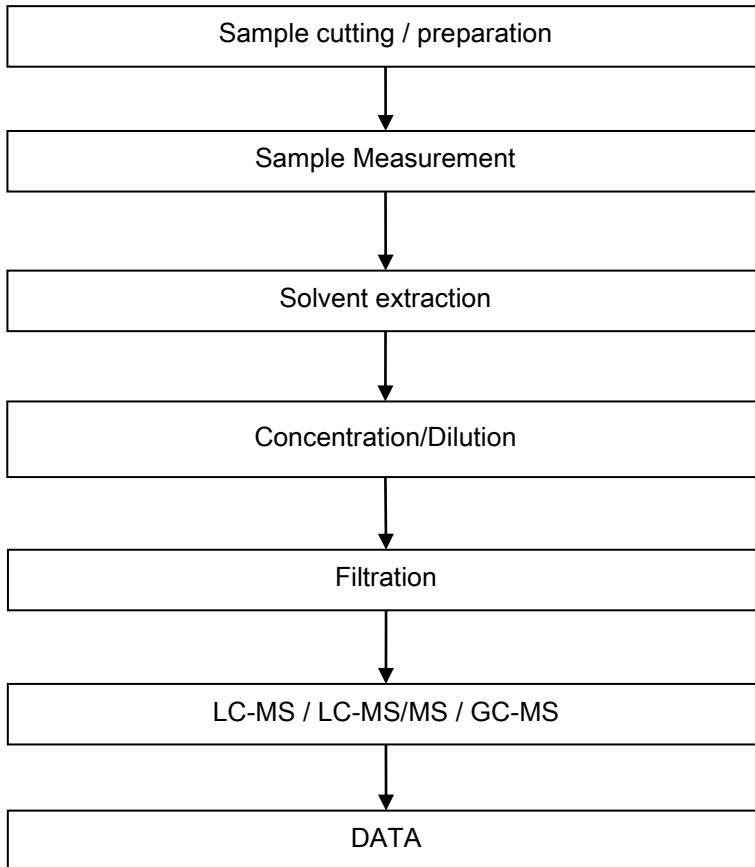


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Attachment:

PFAS Testing Flow Chart

- 1) Name of the person who made testing: Olivia Li
- 2) Name of the person in charge of testing: Qiong Liu

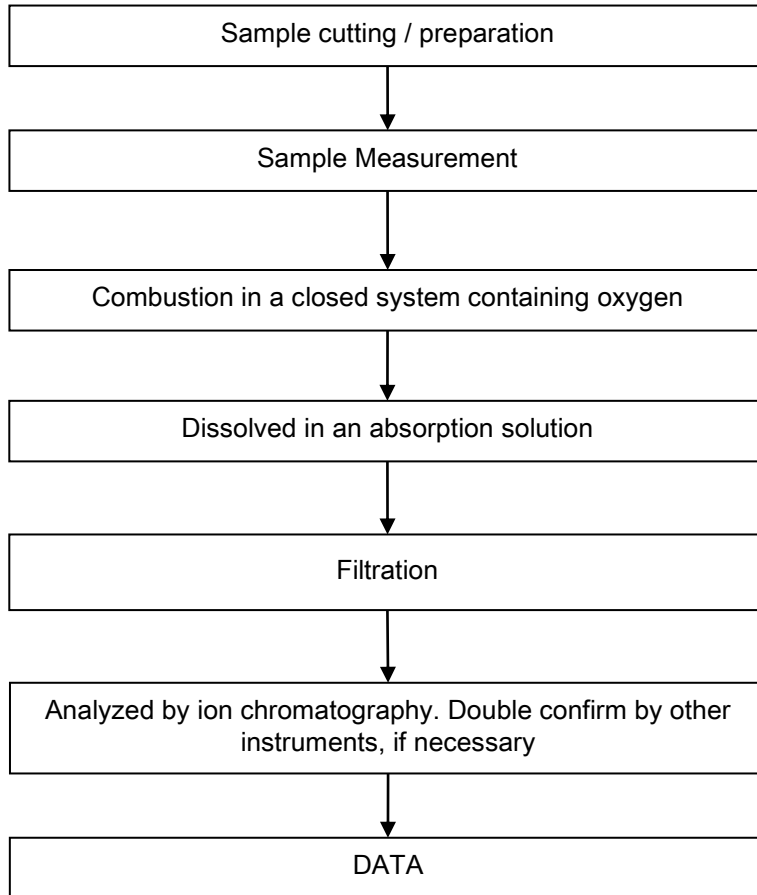


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Halogen Testing Flow Chart

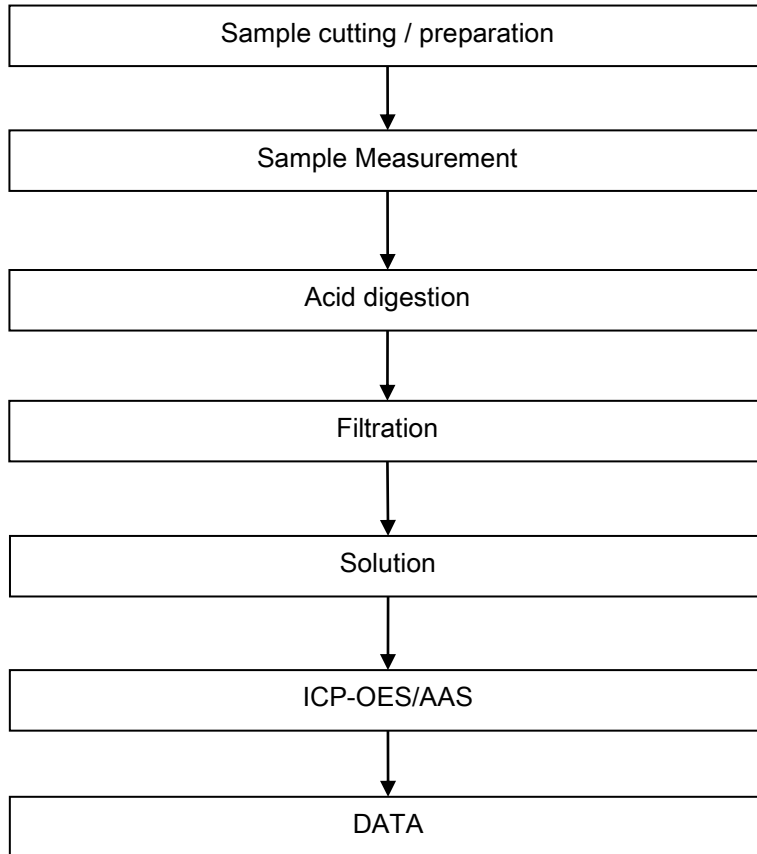
- 1) Name of the person who made testing: Allen Shi
- 2) Name of the person in charge of testing: Bella Wang



Attachment:

Elementary Testing Flow Chart

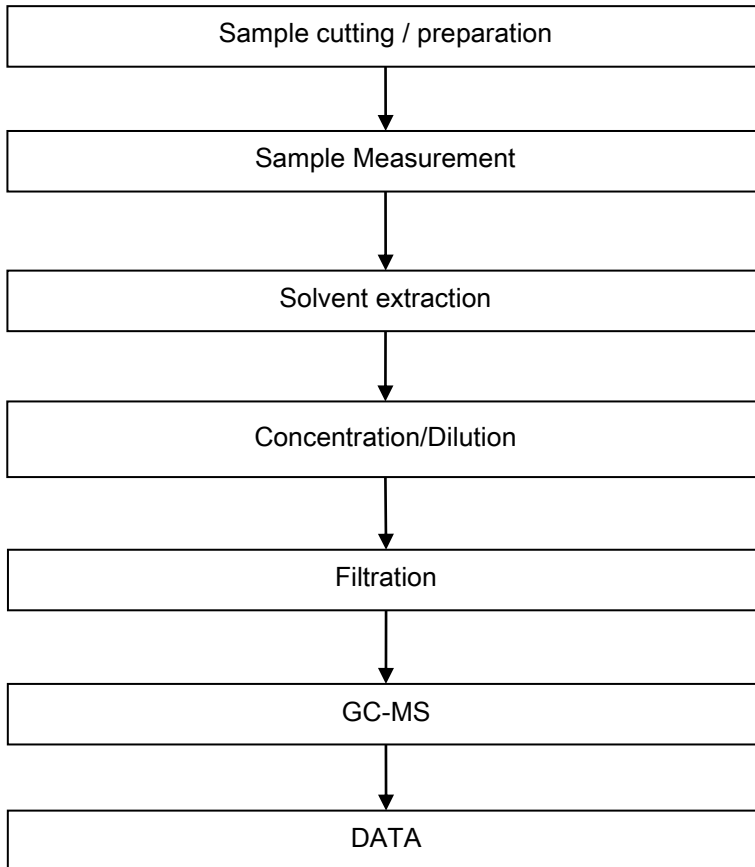
- 1) Name of the person who made testing: Edith Zhang
- 2) Name of the person in charge of testing: Bella Wang



Attachment:

HBCDD Testing Flow Chart

- 1) Name of the person who made testing: Judy Chen
- 2) Name of the person in charge of testing: Qiong Liu



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Page 12 of 12

Sample Photo:



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