

## Test Report

No. CANEC1700304235

Date: 24 Jan 2017

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KINGBOARD LAMINATES HOLDINGS LIMITED

2/F., HARBOUR VIEW 1, NO. 12 SCIENCE PARK EAST AVENUE, PHASE II HONG KONG SCIENCE PARK, SHATIN, N.T., HONG KONG

The following sample(s) was/were submitted and identified on behalf of the clients as : KB-7150

SGS Job No. : CP17-000756 - GZ  
Model No. : KB-7150  
Client Ref. Info. : KB-7150C,KB-7150T  
Date of Sample Received : 05 Jan 2017  
Testing Period : 05 Jan 2017 - 23 Jan 2017  
Test Requested : Selected test(s) as requested by client.  
Test Method : Please refer to next page(s).  
Test Results : Please refer to next page(s).  
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

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

*Violet*

Violet, Shi  
Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN17-003042.005	Off-white sheet

Remarks :

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

**RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU**

- Test Method :
- (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
  - (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
  - (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
  - (4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.
  - (5)With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.
  - (6)With reference to IEC 62321-8:2013 (111/321/CD) , determination of phthalates by GC-MS.

Test Item(s)	Limit	Unit	MDL	005
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	6
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND



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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

### Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

### Sulfur

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

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Sulfur (S)	mg/kg	50	ND

### Elementary Analysis

Test Method : With reference to SGS in house method(GZTC CHEM-TOP-099-02), analysis was performed by IC and ICP-OES

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Arsenic (As)	mg/kg	10	12
Antimony (Sb)	mg/kg	10	8019



**Tetrabromobisphenol A (TBBP-A)**

Test Method : With reference to US EPA Method 3540C:1996, analysis was performed by GC-MS&HPLC-MS.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Tetrabromobisphenol A (TBBP-A)	mg/kg	10	ND

**Hexabromocyclododecane (HBCDD)**

Test Method : With reference to IEC 62321:2008, analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Hexabromocyclododecane (HBCDD)	mg/kg	10	ND

**PFOA & PFOS (Perfluorooctanoic acid & Perfluorooctane sulfonates)**

Test Method : With reference to CEN/TS15968:2010, analysis was performed by LC-MS.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Perfluorooctanoic acid (PFOA)	335-67-1	mg/kg	10	ND
Perfluorooctane Sulfonates (PFOS)^	-	mg/kg	10	ND

Notes :

(1) ^ PFOS refer to Perfluorooctanesulfonic acid and its derivatives including Perfluorooctanesulfonic acid, Perfluorooctane sulfonamide, N-Methylperfluorooctane sulfonamide, N-Ethylperfluorooctane sulfonamide, N-Methylperfluorooctane sulfonamidoethanol and N-Ethylperfluorooctane sulfonamidoethanol.

**Phthalate**

Test Method : With reference to EN14372: 2004. Analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Dibutyl Phthalate (DBP)	84-74-2	%(w/w)	0.003	ND
Benzylbutyl Phthalate (BBP)	85-68-7	%(w/w)	0.003	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	117-81-7	%(w/w)	0.003	ND
Diisononyl Phthalate (DINP)	28553-12-0 / 68515-48-0	%(w/w)	0.010	ND



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<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Di-n-octyl Phthalate (DNOP)	117-84-0	%(w/w)	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 / 68515-49-1	%(w/w)	0.010	ND
Dimethyl Phthalate (DMP)	131-11-3	%(w/w)	0.003	ND
Diethyl Phthalate (DEP)	84-66-2	%(w/w)	0.003	ND
Dipropyl Phthalate (DPrP)	131-16-8	%(w/w)	0.003	ND
Diisobutyl Phthalate (DIBP)	84-69-5	%(w/w)	0.003	ND
Di-n-pentyl Phthalate (DnPP)	131-18-0	%(w/w)	0.003	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	%(w/w)	0.003	ND
Dicyclohexyl Phthalate (DCHP)	84-61-7	%(w/w)	0.003	ND
Diphenyl Phthalate (DPhP)	84-62-8	%(w/w)	0.003	ND
Dibenzyl Phthalate (DBzP)	523-31-9	%(w/w)	0.003	ND
Dinonyl Phthalate (DNP)	84-76-4	%(w/w)	0.003	ND
Diisooctyl Phthalate (DIOP)	27554-26-3	%(w/w)	0.010	ND
Bis(2-methoxyethyl) Phthalate (DMEP)	117-82-8	%(w/w)	0.003	ND
Diallyl Phthalate (DAP)	131-17-9	%(w/w)	0.003	ND
n-decyl, n-octyl Phthalate (nDnOP)	119-07-3	%(w/w)	0.003	ND
Di-n-decyl Phthalate (DnDP)	84-77-5	%(w/w)	0.003	ND
Diisopentyl Phthalate (DIPP)	605-50-5	%(w/w)	0.003	ND
n-pentyl Isopentyl Phthalate (nPIPP)	776297-69-9	%(w/w)	0.003	ND
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6	%(w/w)	0.010	ND
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4	%(w/w)	0.010	ND
Di(2-ethylhexyl)adipate (DEHA)	103-23-1	%(w/w)	0.003	ND
Bis(4-methyl-2-pentyl) Phthalate (BMPP)	146-50-9	%(w/w)	0.003	ND
Bis(2-ethoxyethyl) Phthalate (DEEP)	605-54-9	%(w/w)	0.003	ND
Bis(2-n-butoxyethyl) Phthalate (DBEP)	117-83-9	%(w/w)	0.003	ND
Diundecyl Phthalate (DUDP)	3648-20-2	%(w/w)	0.003	ND
Diisononyl adipate (DINA)	33703-08-1	%(w/w)	0.010	ND
Ditridecyl Phthalate (DTDP)	119-06-2	%(w/w)	0.003	ND
Trioctyl trimellitate (TOTM)	3319-31-1	%(w/w)	0.003	ND
Dioctyl Terephthalate (DOTP)	6422-86-2	%(w/w)	0.003	ND
Di-n-heptyl Phthalate (DnHpP)	3648-21-3	%(w/w)	0.003	ND
Acetyltributylcitrate (Citroflex, ATBC)	77-90-7	%(w/w)	0.010	ND
Di(2-propylheptyl) Phthalate(DPHpP)	53306-54-0	%(w/w)	0.010	ND
1,2-Benzenedicarboxylic acid, dihexyl ester branched and linear(DHP)	68515-50-4	%(w/w)	0.010	ND



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<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
1,2-Benzenedicarboxylic acid, dipentyl ester, branched and linear (DPP)	84777-06-0	%(w/w)	0.010	ND

### Notes :

- (1)DBP,BBP,DEHP Reference information: Entry 51 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC):
- i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles.
  - ii) Toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.
- Please refer to Regulation (EC) No 552/2009 to get more detail information
- (2)DINP, DNOP, DIDP Reference information: Entry 52 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC).
- i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children.
  - ii) Such toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.
- Please refer to Regulation (EC) No 552/2009 to get more detail information

### Organic-tin compounds

Test Method : With reference to ISO 17353: 2004 , analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Monobutyl tin (MBT)	mg/kg	0.02	ND
Dibutyl tin (DBT)	mg/kg	0.02	ND
Tributyl tin (TBT)	mg/kg	0.02	ND
Monoctyl tin (MOT)	mg/kg	0.02	ND
Tetrabutyltin (TTBT/TeBT)	mg/kg	0.02	ND
Diocyl tin (DOT)	mg/kg	0.02	ND
Triphenyl tin (TPhT)	mg/kg	0.02	ND
Tricyclohexyl tin (TCyT)	mg/kg	0.02	ND

### Benzotriazole UV Absorbant

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



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<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
2- (3,5-Di-tert-butyl-2-hydroxyphenyl) benzotriazole (UV-320)	3846-71-7	mg/kg	5	ND
2- (3',5'-Di-tert-butyl-2'-hydroxyphenyl)-5-chloro benzotriazole	3864-99-1	mg/kg	5	ND
2-(2'-hydroxy-3',5'-di-tert-amylphenyl) benzotriazole (UV-328)	25973-55-1	mg/kg	5	ND
TinUVin 350 (UV-350)	36437-37-3	mg/kg	5	ND

Remark: Results & photo(s) in this report refer to test report CANEC1700304215, CANEC1700304233 A01.



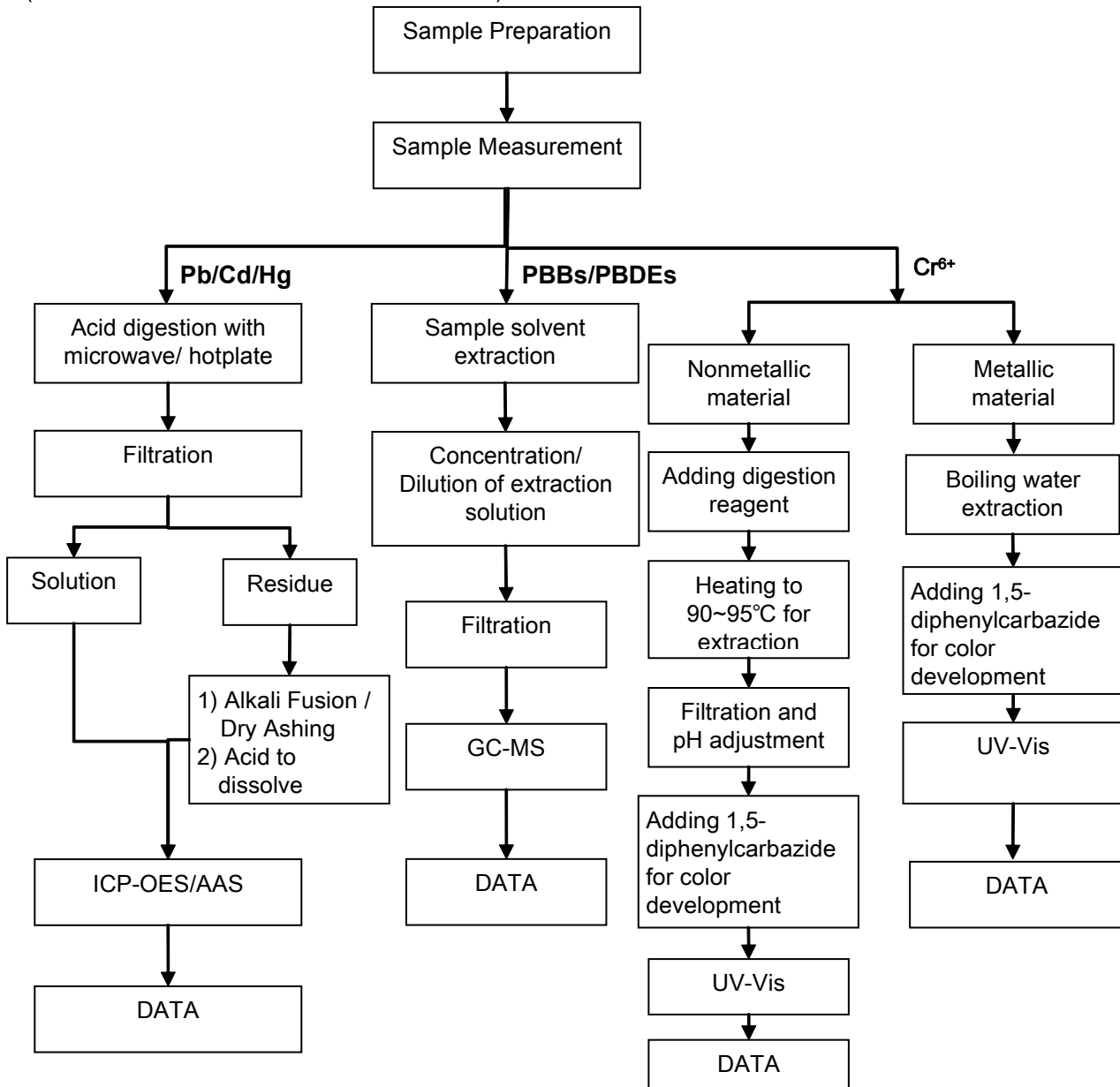
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**Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs Testing Flow Chart**

- 1) Name of the person who made testing: Edith Zhang / Sunny Hu
- 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 (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).

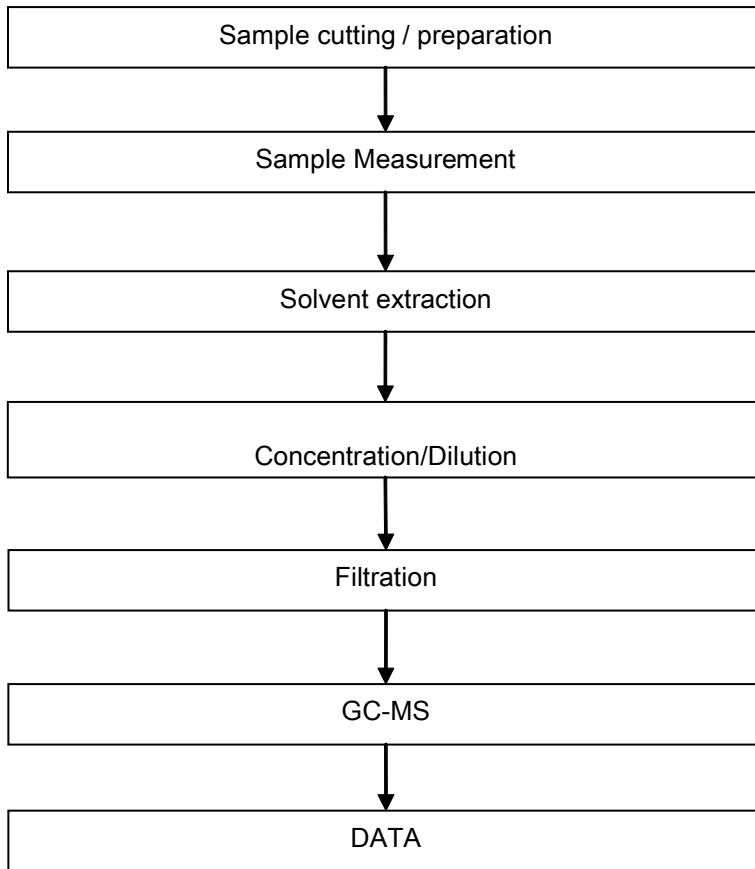




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Phthalates Testing Flow Chart

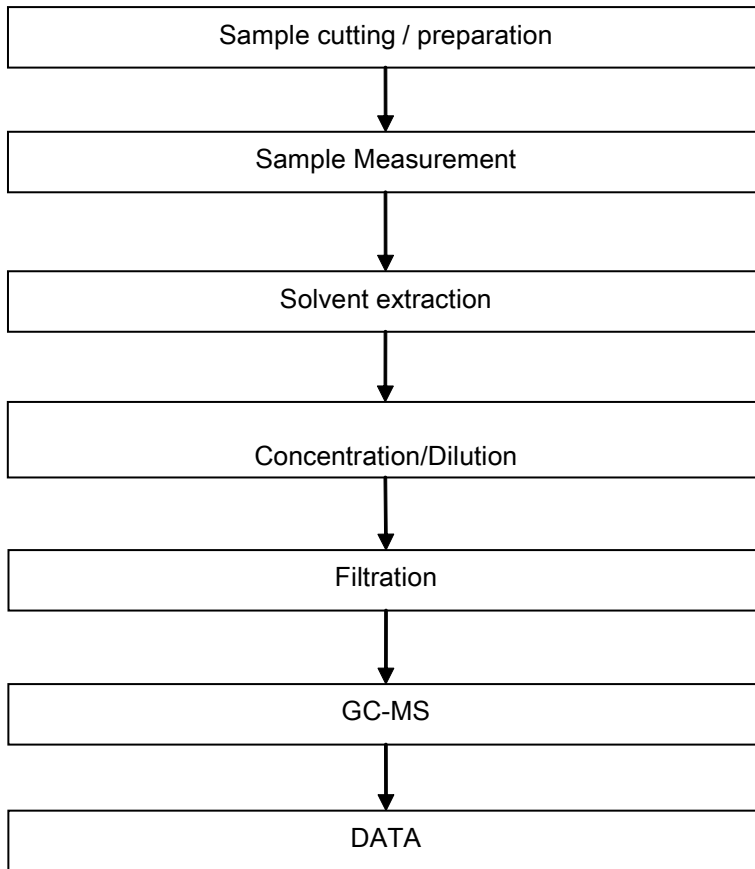
- 1) Name of the person who made testing: Sunny Hu
- 2) Name of the person in charge of testing: Qiong Liu



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HBCDD Testing Flow Chart

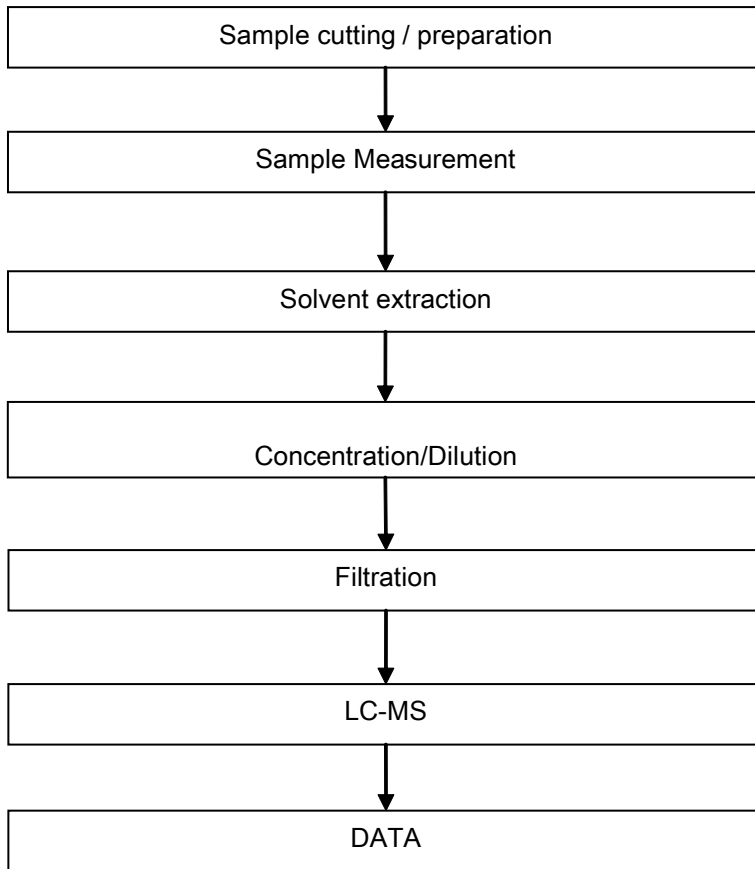
- 1) Name of the person who made testing: Sunny Hu
- 2) Name of the person in charge of testing: Qiong Liu



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PFOA / PFOS Testing Flow Chart

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



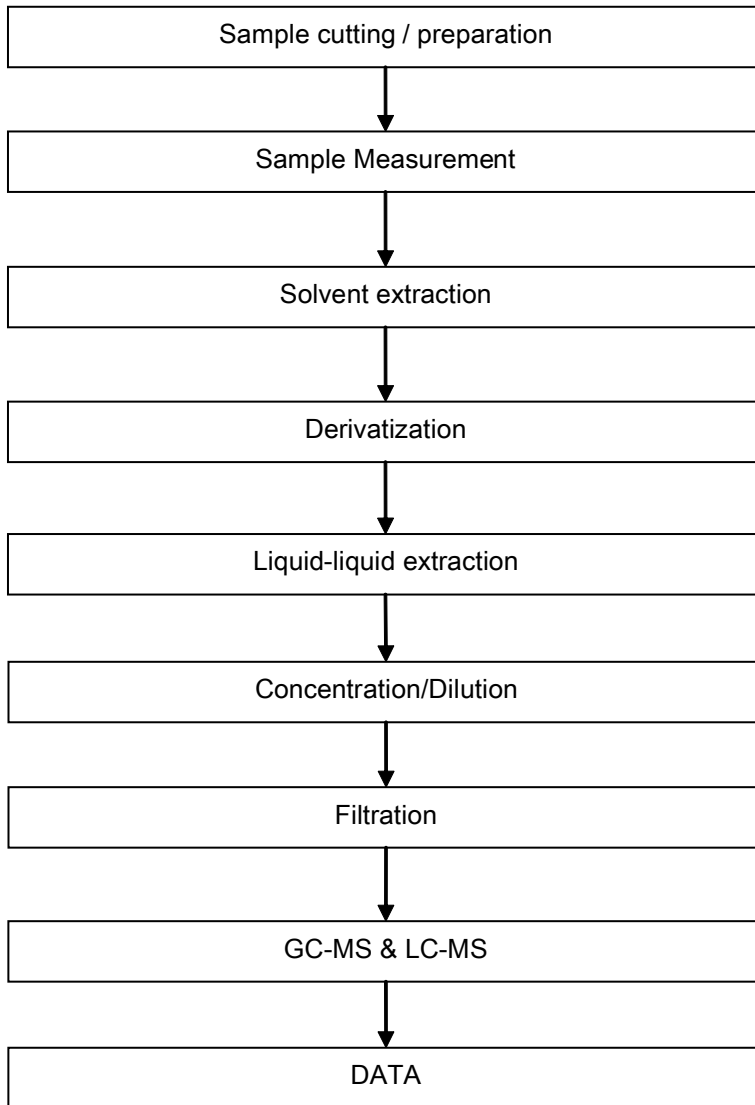
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TBBP-A Testing Flow Chart

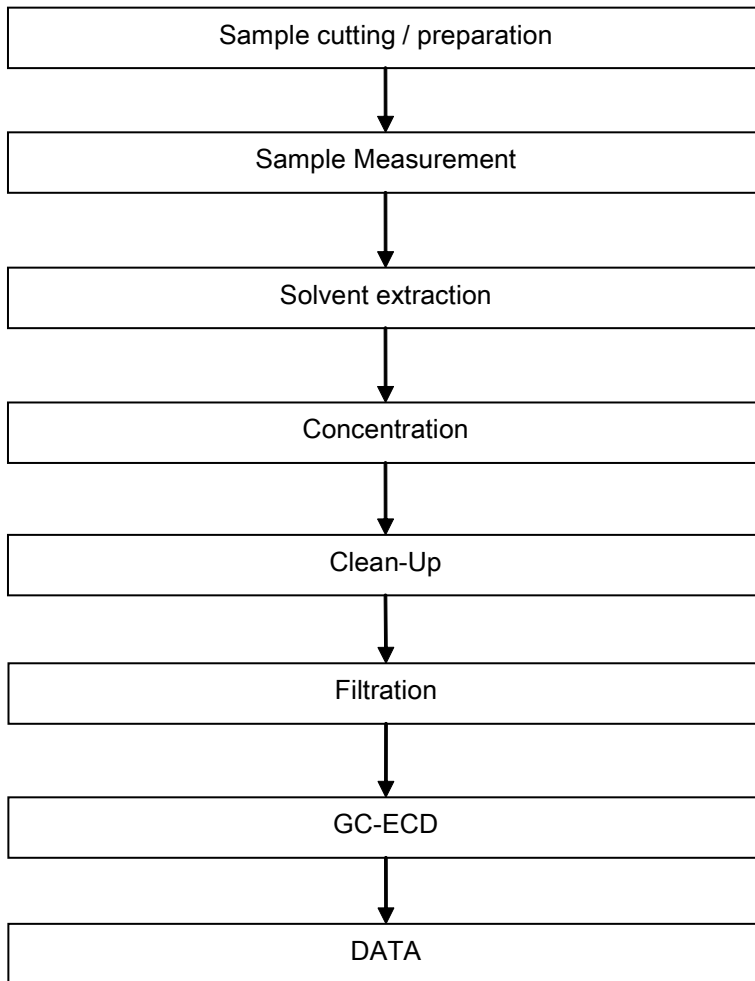
- 1) Name of the person who made testing: Judy Zhang
- 2) Name of the person in charge of testing: Qiong Liu



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SCCP/MCCP Testing Flow Chart

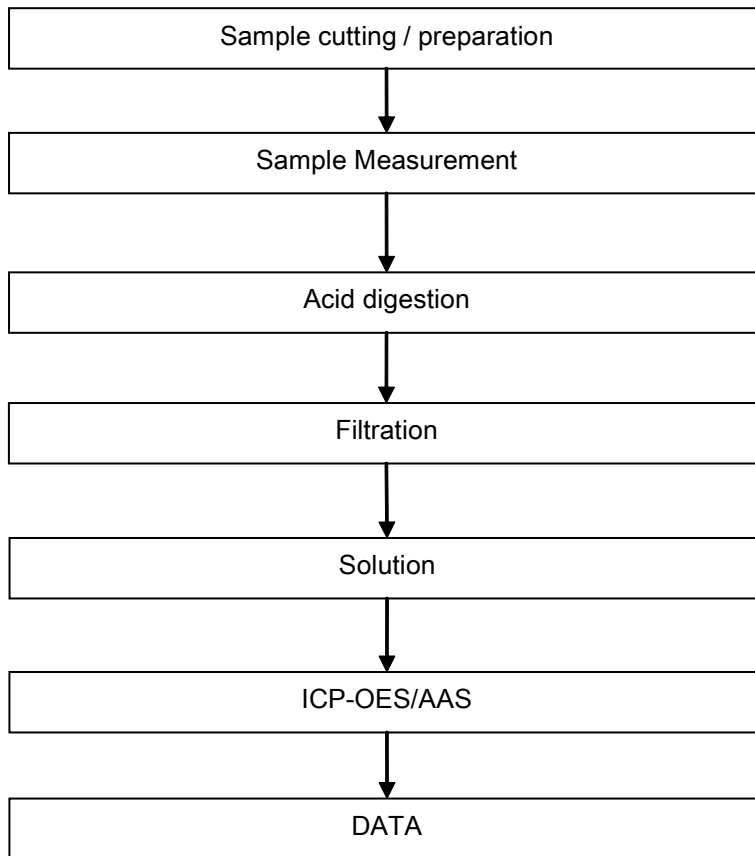
- 1) Name of the person who made testing: Iris Zhong
- 2) Name of the person in charge of testing: Lireny Liu



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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



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