



Test Report

No.: GZ1105068067/CHEM

Date: JUN 02, 2011

Page 1 of 13

SHENZHEN AOCHUAN TECHNOLOGY CO., LTD
MIAOXI INDUSTRIAL PARK, GUANLAN TOWN, BAOAN DISTRICT, SHENZHEN CITY CHINA

The following sample(s) was/were submitted and identified on behalf of the applicant as Thermal Pad

SGS Job No. : SZ13147197
SGS Internal Reference No. : 4.1
Tested sample information : Model No.: TP080
Client Reference Information : TP120/TP100/TP150/TP200/TP250/TP300/STP060/
UTP100/SPA/SPC/SPE/TC23G/TC30G/TC45G
Date of Sample Received : MAY 30, 2011
Testing Period : MAY 30, 2011 TO JUN 02, 2011

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

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

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

Signed for and on behalf of
SGS-CSTC Ltd.

Manson Yang
Approved Signatory

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Guangzhou Testing Services Chemical Laboratory

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Test Results:

Description for specimen 1 : Grey sheet

RoHS Directive 2002/95/EC

Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium (Cd)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2	100
Lead (Pb)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2	1000
Mercury (Hg)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2	1000
Hexavalent Chromium (CrVI) by alkaline extraction	mg/kg	IEC 62321: 2008, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	-	N.D.	-	1000
Monobromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Dibromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tribromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tetrabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Pentabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Hexabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Heptabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Octabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Nonabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Decabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Sum of PBDEs	mg/kg	-	N.D.	-	1000
Monobromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Dibromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tribromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tetrabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Pentabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Hexabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Heptabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Octabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Nonabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Decabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	

Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. "-" = Not regulated

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Test Report

No.: GZ1105068067/CHEM

Date: JUN 02, 2011

Page 3 of 13

Elementary Analysis

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Antimony (Sb)	mg/kg	EPA 3052: 1996, ICP-OES	N.D.	10
Beryllium (Be)	mg/kg	EPA 3052: 1996, ICP-OES	N.D.	5

Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

PAHs (Polynuclear Aromatic Hydrocarbons)

Test Item(s)	Unit	Test Method	Results	MDL
Naphthalene (NAP)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Acenaphthylene (ANY)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Acenaphthene (ANA)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Fluorene (FLU)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Phenanthrene (PHE)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Anthracene (ANT)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Fluoranthene (FLT)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Pyrene (PYR)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(a)anthracene (BaA)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Chrysene (CHR)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(b)fluoranthene (BbF)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(k)fluoranthene (BkF)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(a)pyrene (BaP)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Indeno(1-,2,3-c,d)pyrene (IPY)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Dibenzo(a,h)anthracene (DBA)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Benzo(g,h,i)perylene (BPE)	mg/kg	ZEK 01.2-08, GC-MS	N.D.	0.2
Sum of 16 PAHs acc. US EPA	mg/kg	-	N.D.	-

Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

ZEK 01.2-08 : Restraining maximum values for products

Parameter	Category 1	Category 2	Category 3
	Material intended to be put in the mouth or material for toys with normal skin contact for children aged < 36 months	Materials those are not included in Category 1, with predictable contact with the skin longer than 30 s. (long-term skin contact).	Materials those are not included in Category 1 or 2, with predictable skin contact up to 30 s (short-term skin contact).
Benzo[a]pyrene (mg/kg)	<MDL (<0.2)***	1	20

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Date: JUN 02, 2011

Page 4 of 13

Sum of 16 PAH (US EPA)(mg/kg)**	<MDL (<0.2)***	10	200
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Remark:

** = Only PAH substances >0.2 mg/kg are taken into account while calculating the sum of PAHs.

*** = In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material which intended to be put in the mouth by additional specific migration tests of PAH components based on DIN EN 1186ff and §64 LFGB 80.30-1. The conclusion of the migration test results must be made based on food law criteria.

PFOA & PFOS (Perfluorooctanoic acid & Perfluorooctane sulfonates)

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Perfluorooctanoic acid (PFOA)	mg/kg	EPA 3550C: 2007, LC-MS	N.D.	10
Perfluorooctane sulfonates (PFOS)				
PFOS – Acid	mg/kg	EPA 3550C: 2007, LC-MS	N.D.	10
PFOS – Metal Salt				
PFOS – Amide				

Note:

- 1. mg/kg = ppm
- 2. N.D. = Not Detected (< MDL)
- 3. MDL = Method Detection Limit

For reference: commission regulation (EU) No 757/2010 amending regulation (EC) No 850/2004:

- (1) For the purposes of this entry, Article 4(1) (b) shall apply to concentrations of PFOS equal to or below 10 mg/kg (0,001 % by weight) when it occurs in substances or in preparations.
- (2) For the purposes of this entry, Article 4(1) (b) shall apply to concentrations of PFOS in semi-finished products or articles, or parts thereof, if the concentration of PFOS is lower than 0,1 % by weight calculated with reference to the mass of structurally or micro-structurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is lower than 1µg /m² of the coated material.

Halogen

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Fluorine (F)	mg/kg	BS EN 14582:2007, IC	N.D.	50
Chlorine (Cl)	mg/kg	BS EN 14582:2007, IC	150	50
Bromine (Br)	mg/kg	BS EN 14582:2007, IC	N.D.	50
Iodine (I)	mg/kg	BS EN 14582:2007, IC	N.D.	50

Note:

- 1. mg/kg = ppm
- 2. N.D. = Not Detected (< MDL)
- 3. MDL = Method Detection Limit

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Test Report

No.: GZ1105068067/CHEM

Date: JUN 02, 2011

Page 5 of 13

TBBP-A (Tetrabromobisphenol A)

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Tetrabromobisphenol A (TBBP-A)	mg/kg	EPA 3550C: 2007, GC-MS&HPLC-MS	N.D.	10

Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

Dimethyl Fumarate

Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Dimethyl Fumarate	mg/kg	SGS In-house method(GZTC CHEM-TOP-095), GC-MS	N.D.	0.1	0.1

Comment

PASS

Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

Reference Information:

Recommended maximum limit is with reference to Commission Decision 2011/135/EU (previously restricted under 2010/153/EU and 2009/251/EC). The presence of dimethyl fumarate in products should be determined against the maximum limit of 0.1 mg dimethyl fumarate per kg of product or part of the product.

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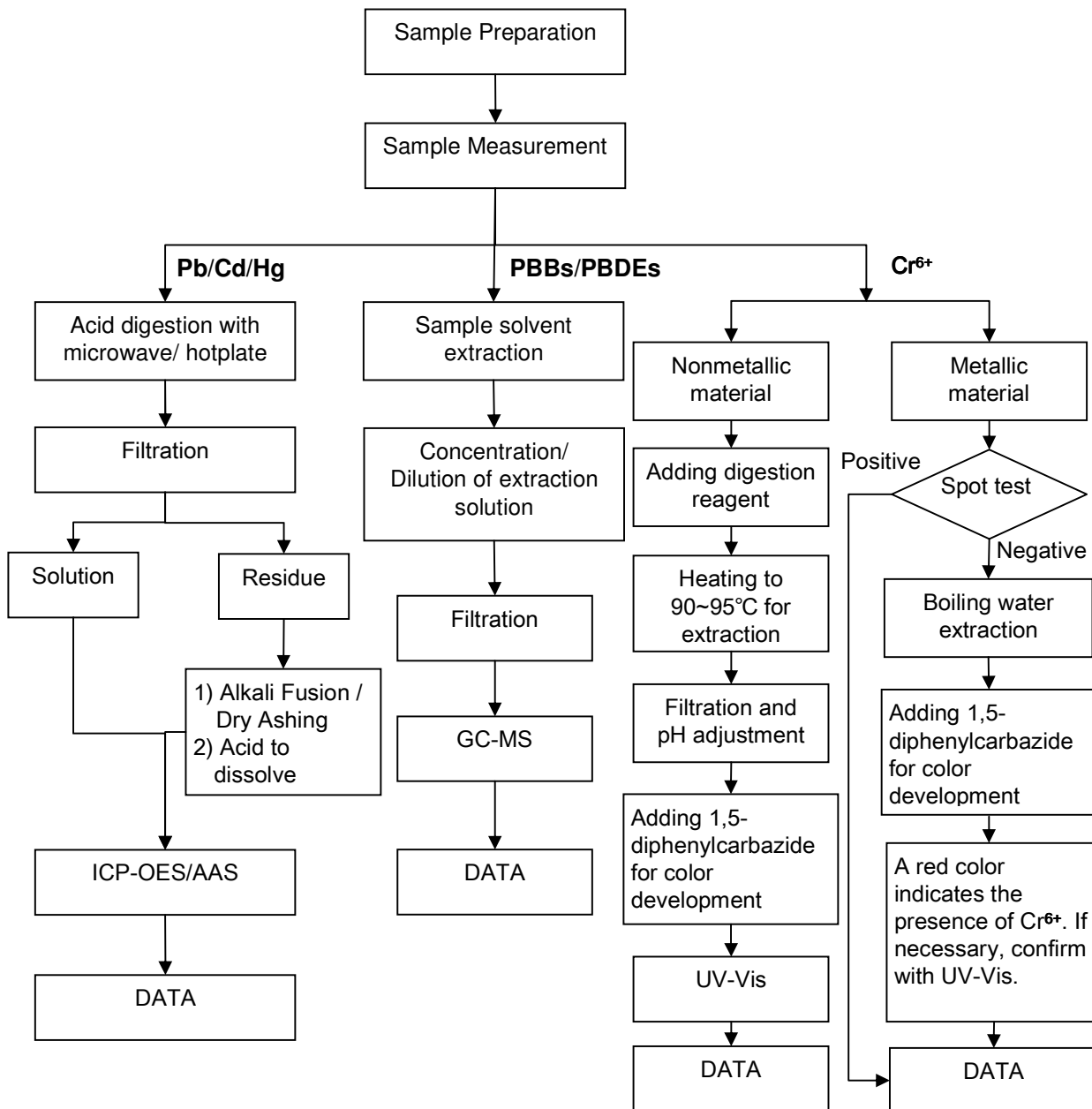
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RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bella Wang / Cutey Yu / Ross Zhan
- 2) Name of the person in charge of testing: Adams Yu / Ryan Yang
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr6+ and PBBs/PBDEs test method excluded).



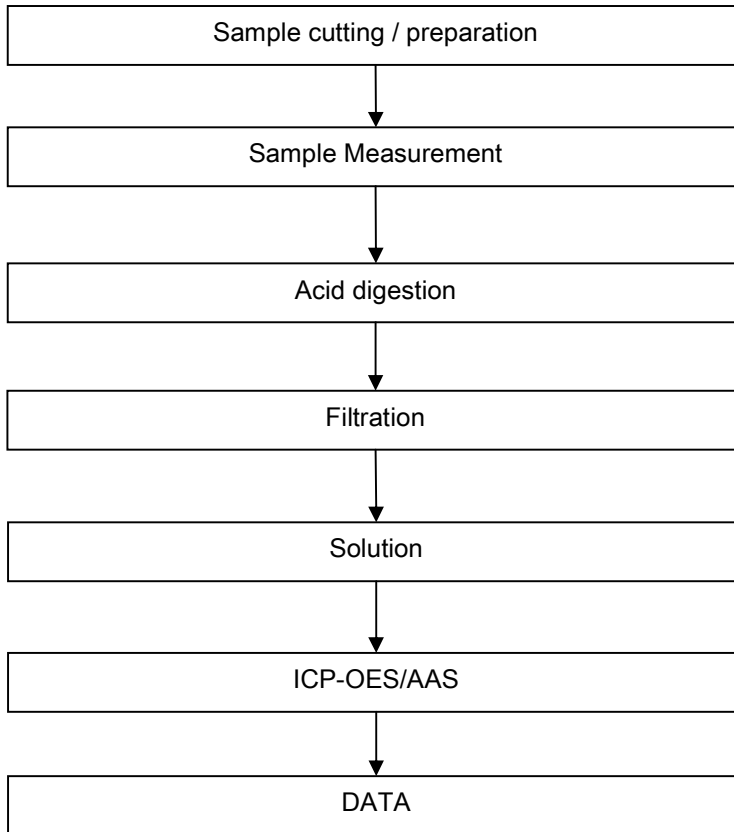
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Elementary Testing Flow Chart

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



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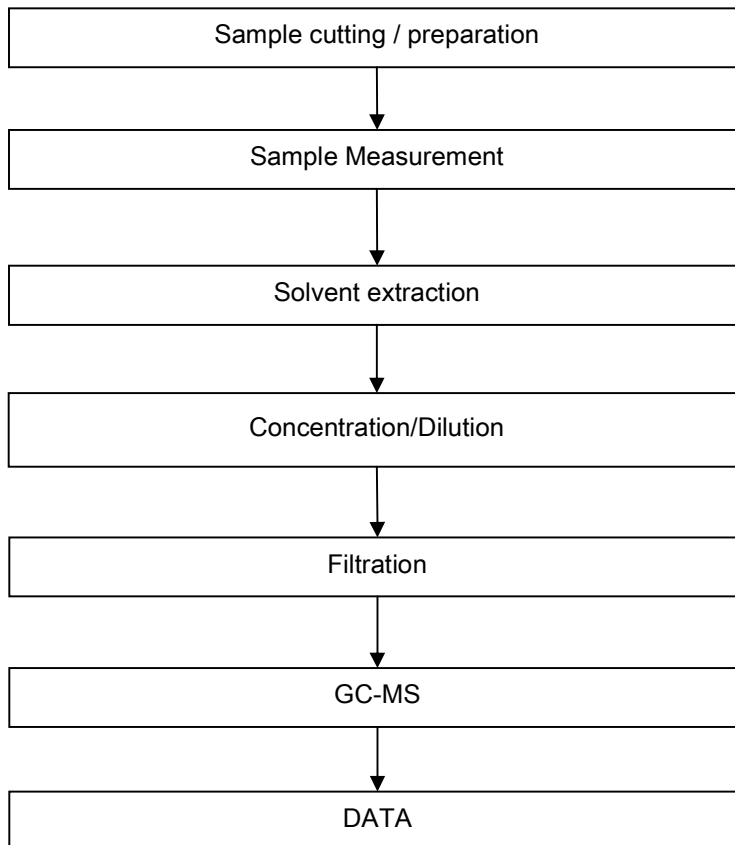
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PAHs Testing Flow Chart

- 1) Name of the person who made testing: Cutey Yu
- 2) Name of the person in charge of testing: Ryan Yang



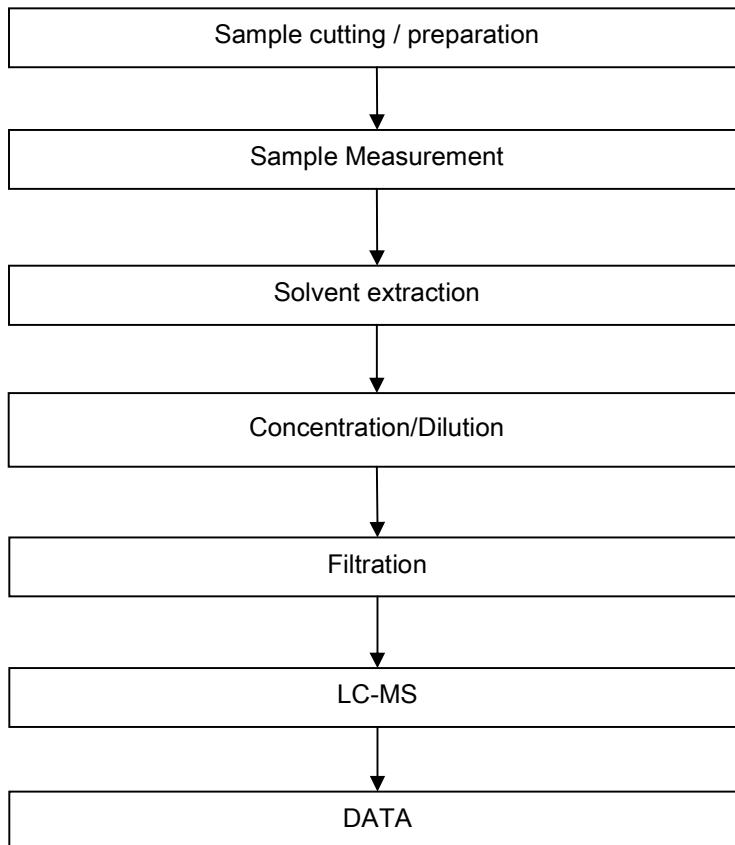
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PFOA / PFOS Testing Flow Chart

- 1) Name of the person who made testing: Cindy Huang
- 2) Name of the person in charge of testing: Ryan Yang



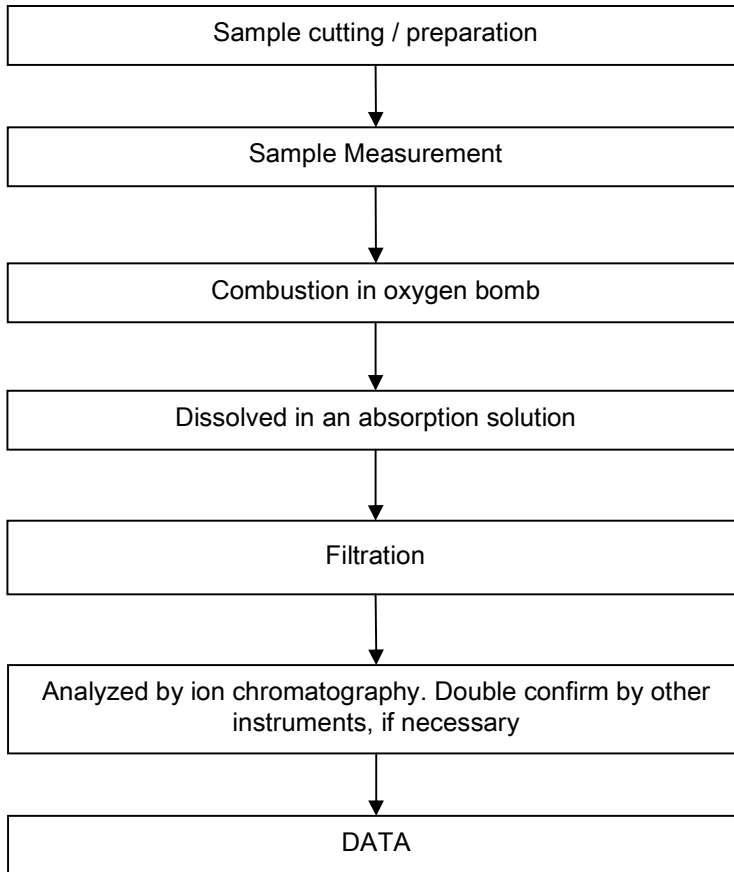
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Halogen Testing Flow Chart

- 1) Name of the person who made testing: Liang Wang
- 2) Name of the person in charge of testing: Michelle Song



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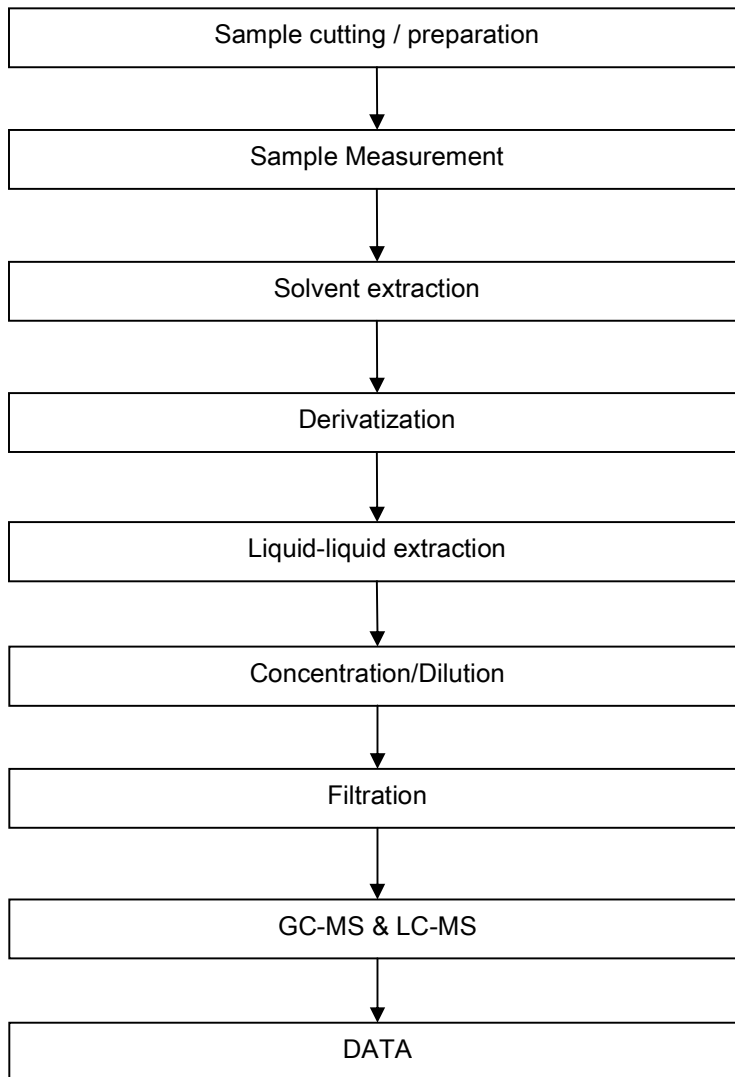
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TBBP-A Testing Flow Chart

- 1) Name of the person who made testing: Cutey Yu
- 2) Name of the person in charge of testing: Ryan Yang



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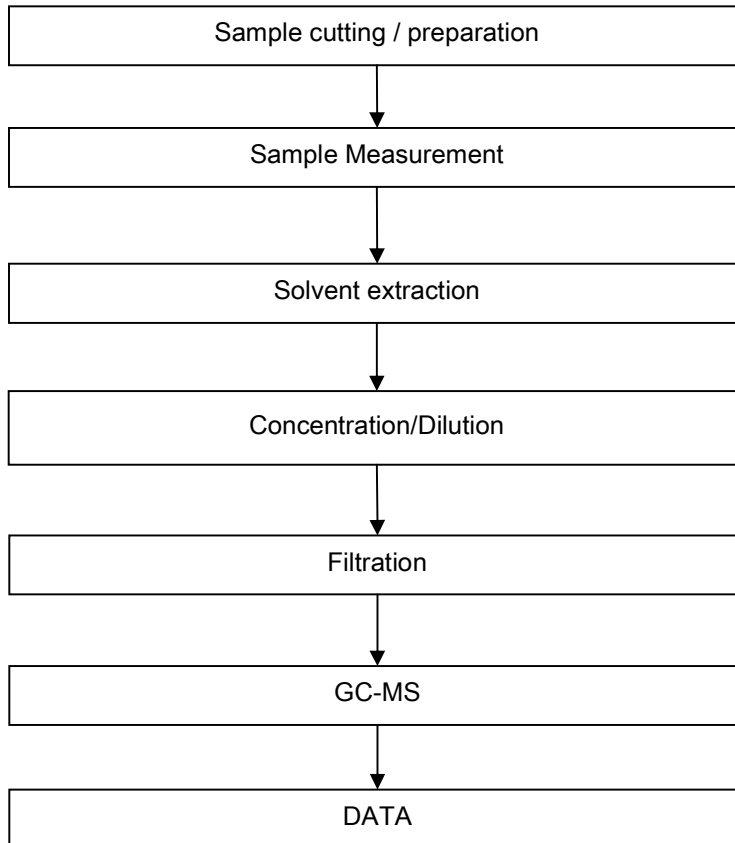
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Dimethyl Fumarate Testing Flow Chart

- 1) Name of the person who made testing: Tina Zhao
- 2) Name of the person in charge of testing: Ryan Yang



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