

# Test Report

Report No. RLSHD000645760013

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**Applicant** ZHEJIANG RECTRON ELECTRONIC CO.,LTD

**Address** 28# LIZHENG ROAD,JIASHAN ECONOMIC DEVELOPMENT ZONE ZHEJIANG,P.R.CHINA

**Report on the submitted sample said to be**

No.	Sample Name	Sample Description	Material	Supplier	Manufacture
1	Lead Wire	Copper-colored metal	Cu	RECTRON	RECTRON
2	Solder Wafer	Silver-grey metal	pb、 Sn、 Ag		
3	Dice Wafer	Wafer	Si		
4	Molding	Black resin	Epoxy		
5	Silicon Rubber	White liquid	Si		
6	Uv Ink	Grey ink	Ink		
7	Plating	Silvery metal	Sn		

Make use of the following package material

SMA(L) / SMB(L) / SMC(L) / SMX / SlimPAQ (P) / ThinPAQ / SOD123 / SOD123F(L) / MELF / MINI MELF / R1 / A405 / DO41 / DO15 / R3 / R6 / R7 / 1.5KE / DO201 / DO204 / HVM / HVP / DBS / DB / DBLS / SLDBS / MDS / MD / BDB / RS1 / RS2(L) / RS4L / RS6 / RS8 / RB15 / WOM / RC2 / BR3 / BR6 / BR8 / BR10 / BR15(W)-25(W)-35(W) / MB15(W)-25(W)-35(W) / MP15(W)-25(W)-35(W) / RS1M-2M-4M-6M-8M-10M-15M-20M-25M-35M / RBU4M-6M-8M-10M-15M / (I)TO220A / (I)TO220 / DPAK / D2PAK / TO247 / SOT23 /

Sample Received Date Jun.13,2011

Testing Period Jun.13,2011 to Jun.17,2011

**Test Requested** To determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Antimony (Sb), Phosphor(P), Perfluorooctane Sulfonates(PFOS), Perfluorooctanoic Acid (PFOA), Triphenyl Tins (TPT), Tributyl Tins (TBT), Dibutyl Tins (DBT), Dioctyl Tins(DOT), Phthalates, Polycyclic Aromatic Hydrocarbons (PAHs) , Tetrabromobisphenol-A (TBBP-A)content in the submitted sample according to the request of client.

**Test Method** Please refer to the following pages.

**Test Result** Please refer to the following pages.

Tested by  \_\_\_\_\_  
 Approved by \_\_\_\_\_  
 Technical Manager

Inspected by Zhang Yijun  
 Date Jun.18,2011

No. 31344738

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## Test Method

Tested Item	Test Method	Measured Equipment	M.D.L.
Lead (Pb)	IEC 62321:2008 Ed.1 Sec.8	ICP-OES	2 mg/kg
	IEC 62321:2008 Ed.1 Sec.9		
Cadmium (Cd)	IEC 62321:2008 Ed.1 Sec.8	ICP-OES	2 mg/kg
	IEC 62321:2008 Ed.1 Sec.9		
Mercury (Hg)	IEC 62321:2008 Ed.1 Sec.7	ICP-OES	2 mg/kg
Hexavalent Chromium (Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis	/
	IEC 62321:2008 Ed.1 Annex C		2 mg/kg
Polybrominated Biphenyls (PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5 mg/kg
Antimony (Sb)	Refer to US EPA 3052:1996	ICP-OES	5 mg/kg
	Refer to US EPA 3050B:1996		
Phosphor(P)	Refer to US EPA 3052:1996	ICP-OES	20 mg/kg
	Refer to US EPA 3050B:1996		
Fluorine (F)	Refer to BS EN 14582:2007	IC	10mg/kg
Chlorine (Cl)	Refer to BS EN 14582:2007	IC	10mg/kg
Bromine (Br)	Refer to BS EN 14582:2007	IC	10mg/kg
Iodine (I)	Refer to BS EN 14582:2007	IC	10mg/kg
Triphenyl Tins (TPT)	Refer to ISO 17353:2004	GC-MS	5mg/kg
Tributyl Tins (TBT)	Refer to ISO 17353:2004	GC-MS	5mg/kg
Dibutyl Tins (DBT)	Refer to ISO 17353:2004	GC-MS	5mg/kg
Diocetyl Tins(DOT)	Refer to ISO 17353:2004	GC-MS	5mg/kg
Perfluorooctane Sulfonates(PFOS)	Refer to US EPA 3550C:2007	LC-MS-MS	5mg/kg
Perfluorooctanoic Acid (PFOA)	Refer to US EPA 3550C:2007	LC-MS-MS	5mg/kg
Phthalates	Refer to EN 14372:2004	GC-MS	50mg/kg
Polycyclic Aromatic Hydrocarbons (PAHs)	Refer to US EPA 8270D:2007	GC-MS	0.2 mg/kg
Tetrabromobisphenol-A (TBBP-A)	Refer to DIN53313:1996	GC-MS	5mg/kg

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## Test Result

Tested Item	Content(Unit: mg/kg)						
	1	2	3	4	5	6	7
Lead (Pb)	8	9.40×10 <sup>5</sup>	9	N.D.	N.D.	N.D.	10
Cadmium (Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Mercury (Hg)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexavalent Chromium (Cr(VI))	Negative	Negative	Negative	N.D.	N.D.	N.D.	Negative
Antimony (Sb)	/	/	/	/	N.D.	/	/
Phosphor(P)	/	/	/	25	N.D.	/	/

Tested Item	Content(Unit: mg/kg)		
	4	5	6
<b>Polybrominated Biphenyls(PBBs)</b>			
Monobromobiphenyl	N.D.	N.D.	N.D.
Dibromobiphenyl	N.D.	N.D.	N.D.
Tribromobiphenyl	N.D.	N.D.	N.D.
Tetrabromobiphenyl	N.D.	N.D.	N.D.
Pentabromobiphenyl	N.D.	N.D.	N.D.
Hexabromobiphenyl	N.D.	N.D.	N.D.
Heptabromobiphenyl	N.D.	N.D.	N.D.
Octabromobiphenyl	N.D.	N.D.	N.D.
Nonabromobiphenyl	N.D.	N.D.	N.D.
Decabromobiphenyl	N.D.	N.D.	N.D.
<b>Polybrominated Diphenyl Ethers(PBDEs)</b>			
Monobromodiphenyl ether	N.D.	N.D.	N.D.
Dibromodiphenyl ether	N.D.	N.D.	N.D.
Tribromodiphenyl ether	N.D.	N.D.	N.D.
Tetrabromodiphenyl ether	N.D.	N.D.	N.D.
Pentabromodiphenyl ether	N.D.	N.D.	N.D.
Hexabromodiphenyl ether	N.D.	N.D.	N.D.
Heptabromodiphenyl ether	N.D.	N.D.	N.D.
Octabromodiphenyl ether	N.D.	N.D.	N.D.
Nonabromodiphenyl ether	N.D.	N.D.	N.D.
Decabromodiphenyl ether	N.D.	N.D.	N.D.

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Tested Item	Content(Unit: mg/kg)		
	4	5	6
<b>Halogen</b>			
Fluorine (F)	N.D.	N.D.	N.D.
Chlorine (Cl)	170	N.D.	143
Bromine (Br)	6871	N.D.	N.D.
Iodine (I)	N.D.	N.D.	N.D.

Tested Item	Content(Unit: mg/kg)		
	4	5	6
Triphenyl Tins (TPT)	N.D.	N.D.	N.D.
Tributyl Tins (TBT)	N.D.	N.D.	N.D.
Dibutyl Tins (DBT)	N.D.	N.D.	N.D.
Diocetyl Tins(DOT)	N.D.	N.D.	N.D.

Tested Item	Content(Unit: mg/kg)		
	4	5	6
Perfluorooctane Sulfonates(PFOS)	N.D.	N.D.	/
Perfluorooctanoic Acid (PFOA)	N.D.	N.D.	/
Tetrabromobisphenol-A (TBBP-A)	N.D.	N.D.	N.D.

Tested Item	CAS No.	EC No.	Content(Unit: mg/kg)	
			4	5
<b>Phthalates</b>				
Dibutyl phthalate (DBP)	84-74-2	201-557-4	N.D.	N.D.
Benzylbutyl phthalate (BBP)	85-68-7	201-622-7	N.D.	N.D.
Di-2-ethylhexyl phthalate (DEHP)	117-81-7	204-211-0	N.D.	N.D.
Diisononyl phthalate (DINP)	28553-12-0	249-079-5	N.D.	N.D.
Di-n-octyl phthalate (DNOP)	117-84-0	204-214-7	N.D.	N.D.
Diisodecyl phthalate (DIDP)	26761-40-0	247-977-1	N.D.	N.D.
Di-n-hexyl phthalate (DNHP)	84-75-3	201-559-5	N.D.	N.D.

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Tested Item	Content(Unit: mg/kg)	
	4	5
<b>Polycyclic Aromatic Hydrocarbons(PAHs)</b>		
Naphthalene	N.D.	N.D.
Acenaphthylene	N.D.	N.D.
Acenaphthene	N.D.	N.D.
Fluorene	N.D.	N.D.
Phenanthrene	N.D.	N.D.
Anthracene	N.D.	N.D.
Fluoranthene	N.D.	N.D.
Pyrene	N.D.	N.D.
Benzo[a]anthracene	N.D.	N.D.
Chrysene	N.D.	N.D.
Benzo[b]fluoranthene	N.D.	N.D.
Benzo[[k]fluoranthene	N.D.	N.D.
Benzo[a]pyrene	N.D.	N.D.
Indenol[1,2,3-cd]pyrene	N.D.	N.D.
Dibenz[a,h]anthracene	N.D.	N.D.
Benzo[g,h,i]perylene	N.D.	N.D.

**Note: The sample had been dissolved totally tested for Lead, Cadmium, Mercury, Antimony and Phosphor.**

-M.D.L. = Method Detection Limit

-N.D. = Not Detected (<M.D.L.)

-mg/kg = ppm = parts per million

-Negative = Absence of Cr (VI). The Cr (VI) concentration detected in the boiling water extraction solution is less than 0.02 mg/kg with 50cm<sup>2</sup> sample surface area used.

# Test Report

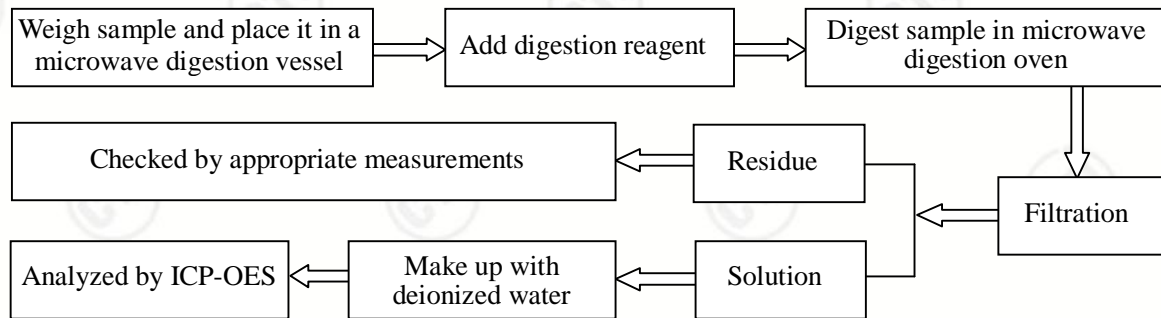
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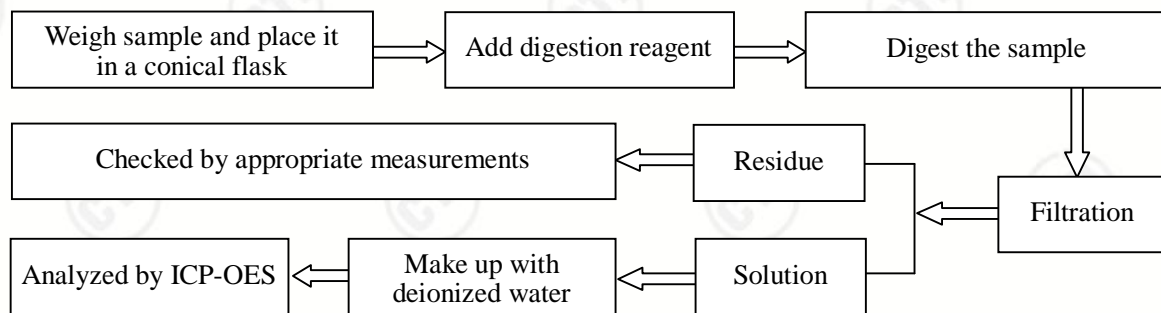
## Test Process

### 1. Test for Pb/Cd Content

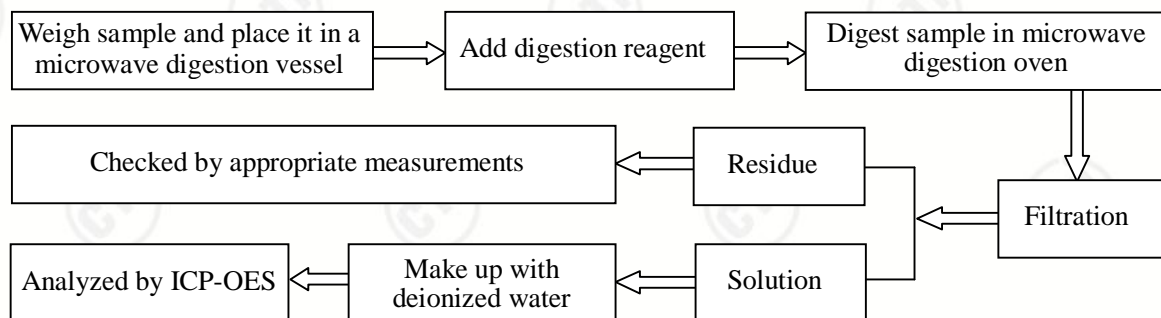
#### (1) IEC 62321:2008 Ed.1 Sec.8



#### (2) IEC 62321:2008 Ed.1 Sec.9



### 2. Test for Hg Content



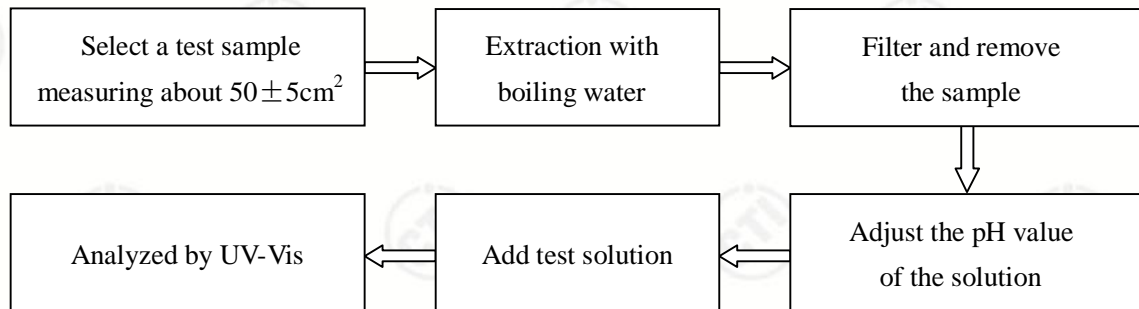
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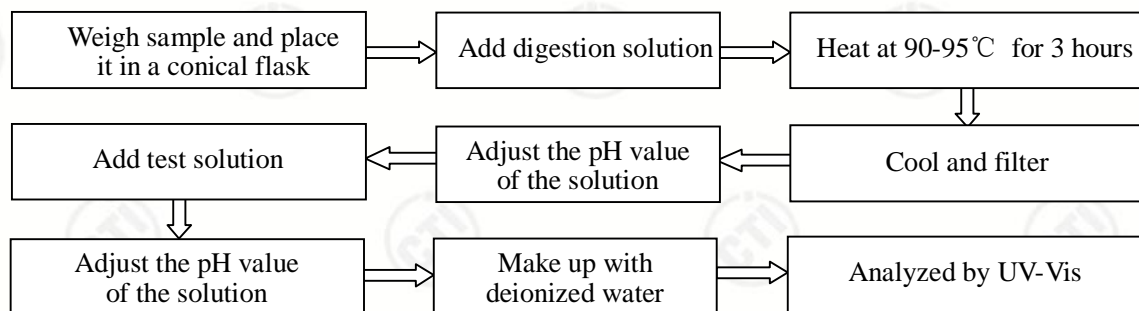
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### 3. Test for Cr (VI) Content

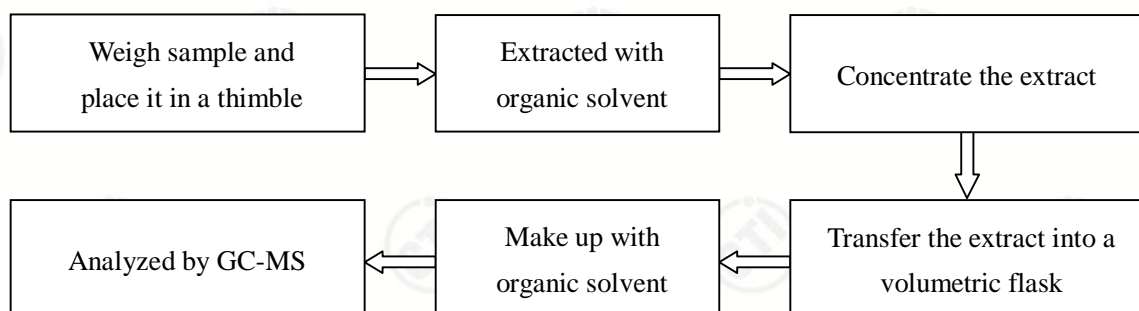
#### (1) IEC 62321:2008 Ed.1 Annex B



#### (2) IEC 62321:2008 Ed.1 Annex C



### 4. Test for PBBs /PBDEs Content

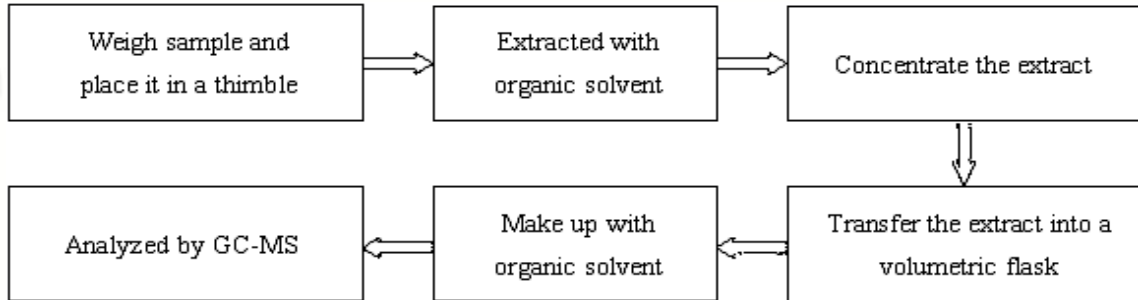


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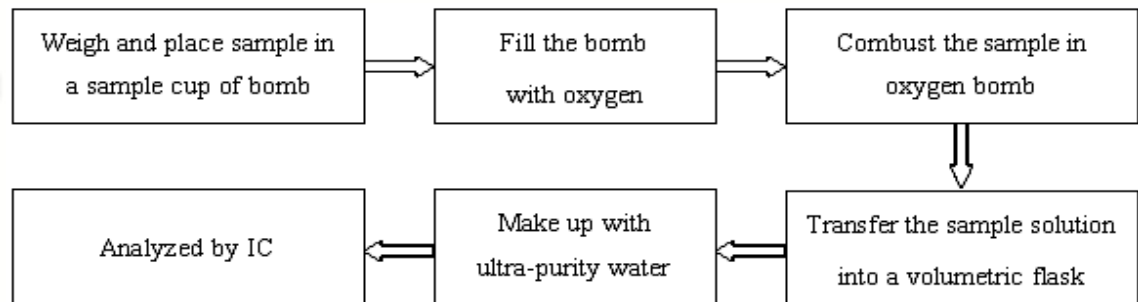
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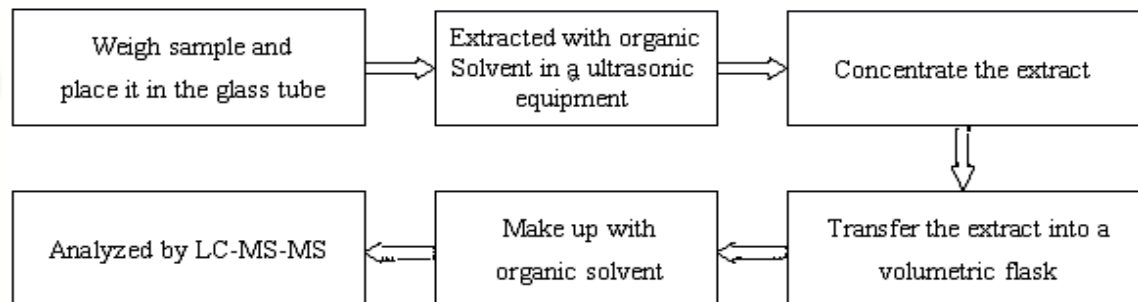
## 5. Test for Phthalates Content



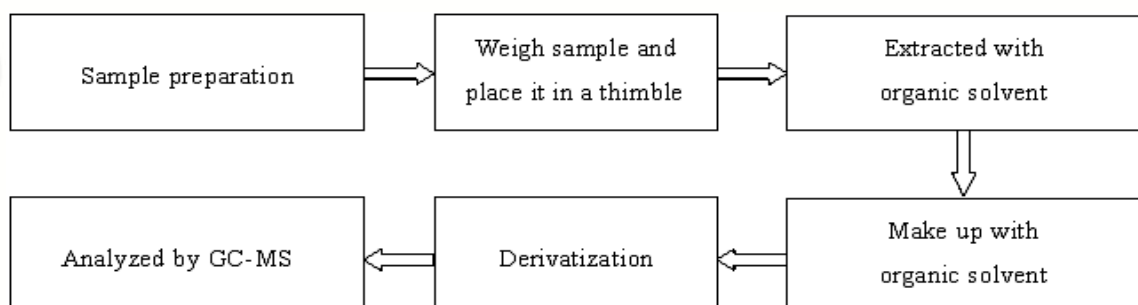
## 6. Test for F, Cl, Br, I Content



## 7. Test for PFOA, PFOS Content



## 8. Test for TPT, TBT, DBT, DOT Content

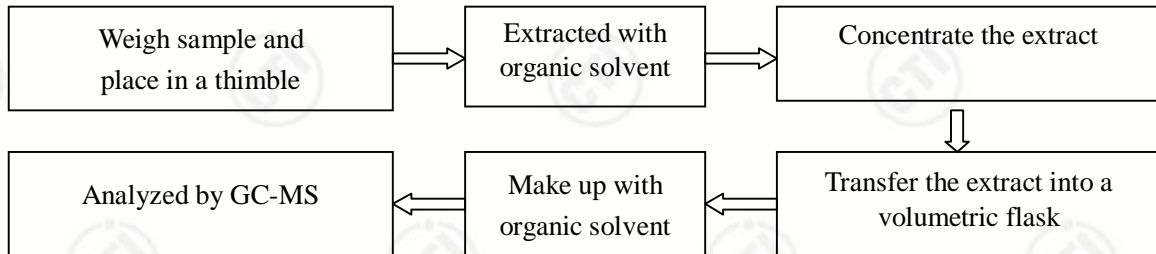


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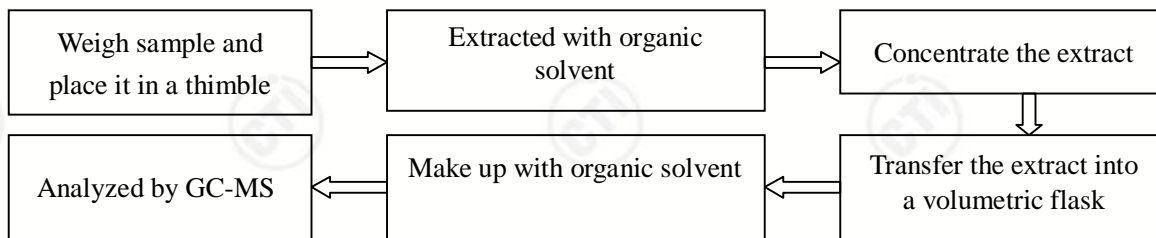
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## 9. Test for PAHs Content

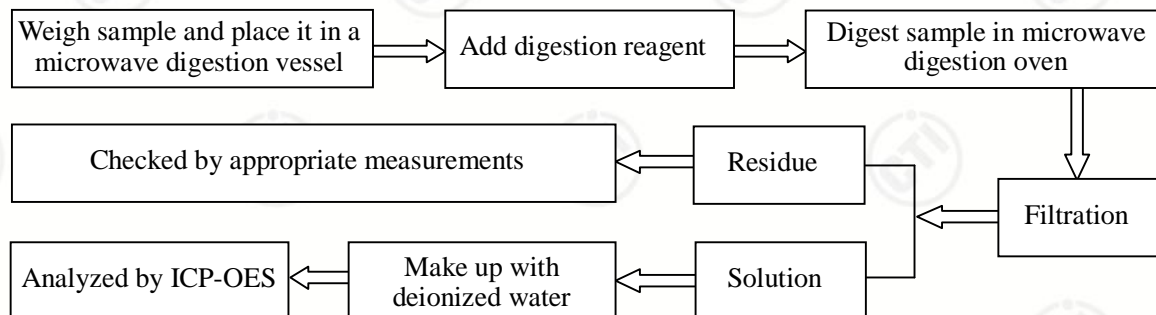


## 10. Test for TBBP-A Content

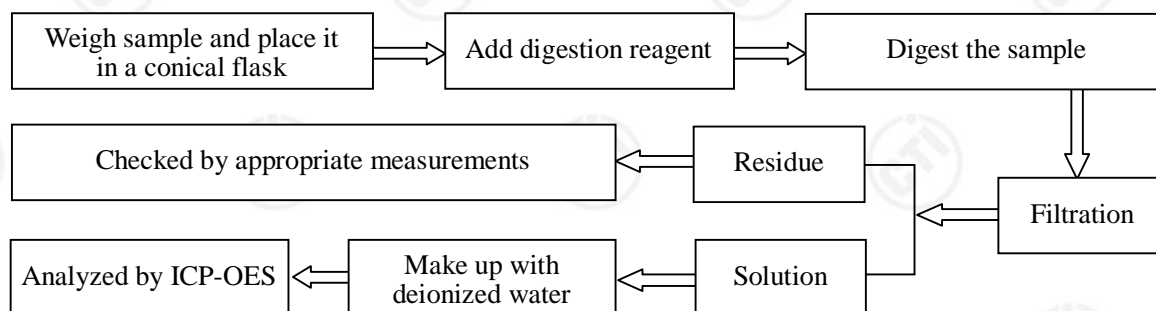


## 11. Test for Sb/P Content

### (1) US EPA 3052:1996



### (2) US EPA 3050B:1996



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## Photo of the sample



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\*\*\* End of report \*\*\*

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