



## Test Report

Report No. A2220114308101010

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**Company Name shown on Report** SUZHOU WALTER ELECTRONIC CO.,LTD/ DONGGUAN WALTER ELECTRIC CO.,LTD./ WALTER ELECTRONIC CO.,LTD./ HONG KONG WALTER ELECTRONIC TECHNOLOGY LIMITED, TANWAN BRANCH

**Address** WUJIANG DISTRICT SUZHOU CITY JIANGSU PROVINCE,CHINA/  
FENGGANG TOWN,DONGGUAN CITY GUANGDONG PROVINCE,CHINA

**The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant**

**Sample Name** Current sensing resistor:  
CSR (STC、HTC、HFCL、SFC、SFCA、FLRV、FLRH)  
ESR(STE、HTE、HTA、STA、STEJ、KRL、ERL、ERE、CSE、CSM、CSC、ETC、FLRV、FLRH)Series

**Sample Received Date** Mar. 26, 2022

**Testing Period** Mar. 26, 2022 to Apr. 1, 2022

**Test Requested** As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Chlorine (Cl), Bromine (Br), Dimethyl fumarate (DMF), Perfluorooctane Sulfonates(PFOS), Perfluorooctanoic Acid(PFOA), Bisphenol A (BPA), Phthalates,Middle Chain Chlorinated Paraffins (MCCPs), Polycyclic Aromatic Hydrocarbons (PAHs), Tetrabromobisphenol A (TBBP-A), Red phosphorus in the submitted sample(s).

**Test Method/Test Result(s)** Please refer to the following page(s).

Tested by

Grace Sun

Reviewed by

Helen Liu

Approved by

Anso Fang

Date

Apr. 1, 2022

Anso Fang

Lab Authorized Signatory

No. R450148069



Centre Testing International Group Co.,Ltd.

Inspection & Testing Services

CTI Building, Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

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## Test Method

Tested Item(s)	Test Method	Measured Equipment(s)
Lead (Pb)	IEC 62321-5:2013	ICP-OES
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Chlorine (Cl)	Refer to EN 14582:2016	IC
Bromine (Br)	Refer to EN 14582:2016	IC
Dimethyl fumarate (DMF)	Refer to US EPA 3550C:2007 & US EPA 8270E:2018	GC-MS
Perfluorooctane Sulfonates(PFOS)	Refer to DIN CEN/TS 15968:2010	LC-MS-MS
Perfluorooctanoic Acid(PFOA)	Refer to DIN CEN/TS 15968:2010	LC-MS-MS
Bisphenol A (BPA)	Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
Phthalates	Refer to EN 14372:2004(E)	GC-MS
Red phosphorus	Refer to GB/T 9722-2006	PY-GC-MS
Polycyclic Aromatic Hydrocarbons (PAHs)	AfPS GS 2019:01 PAK	GC-MS
Middle Chain Chlorinated Paraffins (MCCPs)	Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS(NCI)
Tetrabromobisphenol A (TBBP-A)	Refer to US EPA 3550C:2007 & US EPA 8270E:2018	GC-MS

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## Test Result(s)

Tested Item(s)	Result	MDL
Lead (Pb)	N.D.	2 mg/kg
Cadmium (Cd)	N.D.	2 mg/kg
Mercury (Hg)	N.D.	2 mg/kg
Hexavalent Chromium (Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
<b>Polybrominated Biphenyls (PBBs)</b>		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
<b>Polybrominated Diphenyl Ethers (PBDEs)</b>		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

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Tested Item(s)	Result	MDL
<b>Phthalates (DBP, BBP, DEHP, DIBP)</b>		
Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Chlorine (Cl)	N.D.	10 mg/kg
Bromine (Br)	N.D.	10 mg/kg
Total (Cl)+ (Br)	N.D.	/

Tested Item(s)	Result	MDL
Dimethyl fumarate (DMF)	N.D.	0.1 mg/kg

Tested Item(s)	Result	MDL
Perfluorooctane Sulfonates (PFOS)	N.D.	0.010 mg/kg

Tested Item(s)	Result	MDL
Perfluorooctanoic Acid (PFOA)	N.D.	0.010 mg/kg

Tested Item(s)	Result	MDL
Bisphenol A (BPA)	N.D.	1.0 mg/kg

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Tested Item(s)	Result	MDL
<b>Phthalates</b>		
Di-n-octyl phthalate (DNOP) CAS#:117-84-0	N.D.	30 mg/kg
Di-isononyl phthalate (DINP) CAS#:28553-12-0,68515-48-0	N.D.	50 mg/kg
Di-iso-decyl phthalate (DIDP) CAS#:26761-40-0,68515-49-1	N.D.	50 mg/kg
Dimethyl phthalate (DMP) CAS#:131-11-3	N.D.	30 mg/kg
Diethyl phthalate (DEP) CAS#:84-66-2	N.D.	30 mg/kg
Dipropyl phthalate (DPrP) CAS#:131-16-8	N.D.	30 mg/kg
Dipentyl phthalate (DPP) CAS#:131-18-0	N.D.	30 mg/kg
Diheptyl phthalate (DHP) CAS#:3648-21-3	N.D.	30 mg/kg
Dicyclohexyl phthalate (DCHP) CAS#:84-61-7	N.D.	30 mg/kg
Diisooctyl phthalate (DIOP) CAS#:27554-26-3	N.D.	50 mg/kg
Dinonyl phthalate (DNP) CAS#:84-76-4	N.D.	30 mg/kg
Diisononyl adipate (DINA) CAS#:33703-08-1	N.D.	50 mg/kg
Di-n-hexyl phthalate (DNHP) CAS#:84-75-3	N.D.	30 mg/kg

Tested Item(s)	Result	MDL
Middle Chain Chlorinated Paraffins (MCCPs)	N.D.	100 mg/kg

Tested Item(s)	Result	MDL
Tetrabromobisphenol A (TBBP-A)	N.D.	5 mg/kg

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Tested Item(s)	Result	MDL
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>		
Naphthalene	N.D.	0.2 mg/kg
Phenanthrene	N.D.	0.2 mg/kg
Anthracene	N.D.	0.2 mg/kg
Fluoranthene	N.D.	0.2 mg/kg
Pyrene	N.D.	0.2 mg/kg
Chrysene	N.D.	0.2 mg/kg
Benzo(a)anthracene	N.D.	0.2 mg/kg
Benzo(b)fluoranthene	N.D.	0.2 mg/kg
Benzo(k)fluoranthene	N.D.	0.2 mg/kg
Benzo(j)fluoranthene	N.D.	0.2 mg/kg
Benzo(a)pyrene	N.D.	0.2 mg/kg
Benzo(e)pyrene	N.D.	0.2 mg/kg
Dibenzo(a,h)anthracene	N.D.	0.2 mg/kg
Benzo(g,h,i)perylene	N.D.	0.2 mg/kg
Indenol(1,2,3-cd)pyrene	N.D.	0.2 mg/kg
Sum (Phenanthrene, Anthracene, Fluoranthene, Pyrene)	N.D.	/
Sum 15 PAHs	N.D.	/

Tested Item(s)	Result	MDL
Red phosphorus*	Negative	500 mg/kg

**Sample/Part Description** White solid with silvery covering layer/green ink/black printing(Tested as a whole)

**Remark:**

- The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.
- The sample(s) was tested as a whole, because it's impossible to disassemble or separate it by current equipment and technology. The result(s) shown on this report may be different from the content of any homogeneous material.
- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL)
- mg/kg = ppm = parts per million
- Negative = Not Contained
- The red phosphorus is qualified by PY-GC-MS method which detect pyrolysis products P<sub>4</sub> of red phosphorus. But there is a false positive risk by performing this method, since P<sub>4</sub> could also generate while the phosphate and organic phosphate coexist with some strong oxidizing or reductant agent in pyrolysis process.
- \*Result for reference only.
- Information Statement: Different sample name with different buyer.

**Note:** The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.

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**Maximum PAHs limits (mg/kg) for the materials with relevant contact/grip and operating surfaces that are to be categorised based on the results of the risk assessment**

Parameters	Category 1	Category 2		Category 3	
	Materials intended to be placed in the mouth, or materials in toys according to Directive 2009/48/EC or materials for the use by children up to 3 years of age coming into long-term contact with skin (more than 30s) during the intended use	Materials not covered by category 1, coming into long-term contact (more than 30s) or short-term repetitive contact** with skin during the intended or foreseeable use	Use by children (< 14 years) (include both active and passive direct contact)	Other consumer products	Use by children (< 14 years) (include both active and passive direct contact)
Benzo(a)pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(e)pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(a)anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(b)fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(j)fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(k)fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenz(a,h)anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(g,h,i)perylene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indenol(1,2,3-cd)pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Phenanthrene, Anthracene, Fluoranthene, Pyrene	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Naphthalene	< 1	< 2		< 10	
Sum 15 PAHs	< 1	< 5	< 10	< 20	< 50

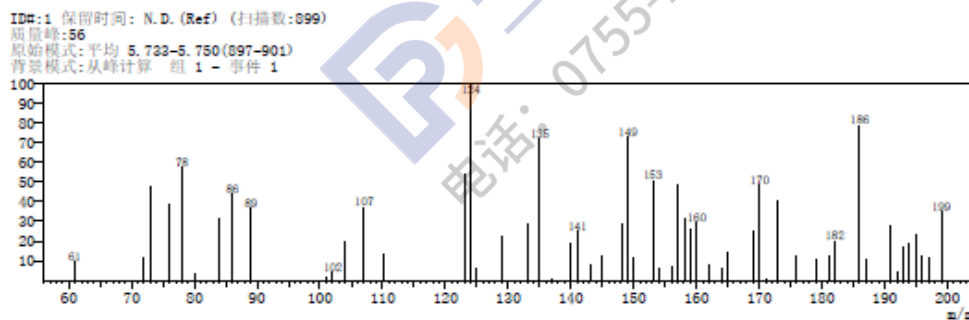
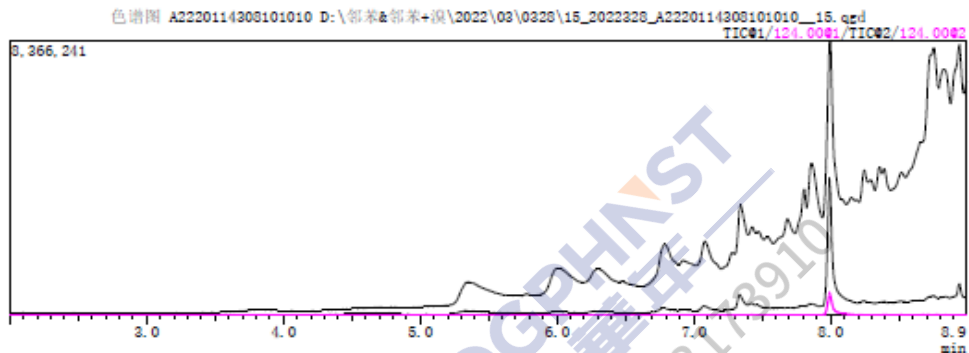
\*\* Definition "short-term repetitive contact" taken from REACH Annex XVII entry 50 amendment (REGULATION (EU) No.1272/2013)

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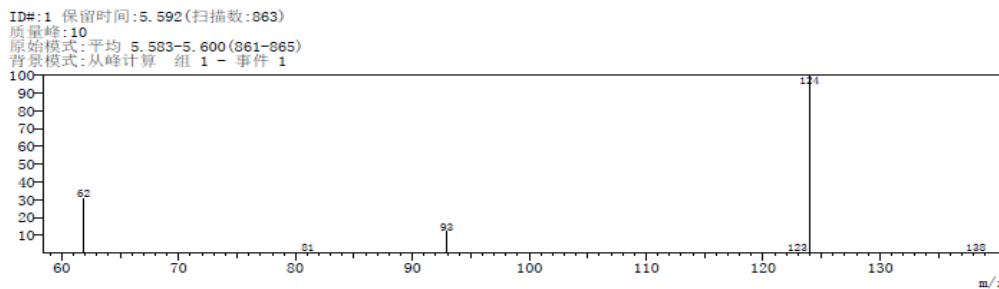
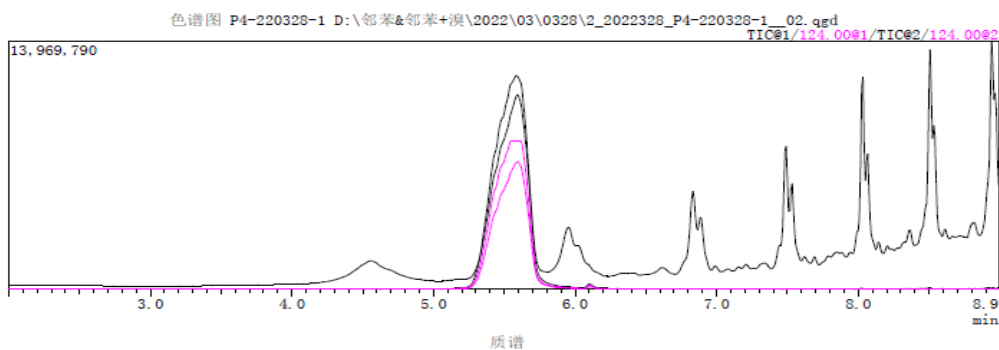
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## Red phosphorus Test Spectra



## Standard Material Test Spectra





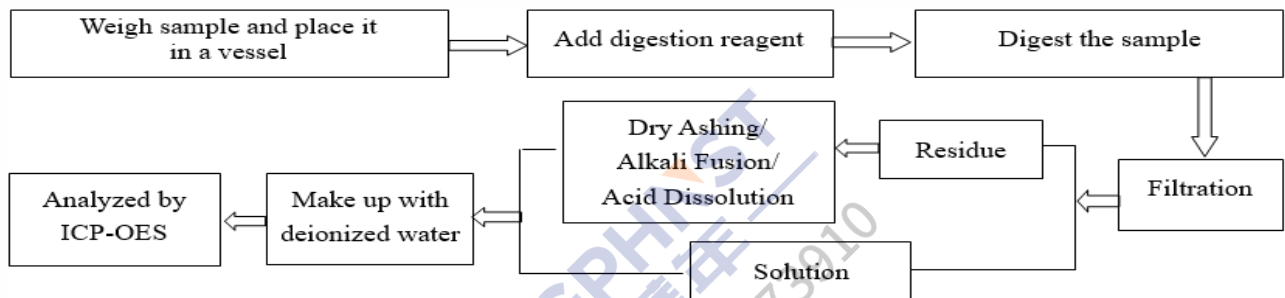
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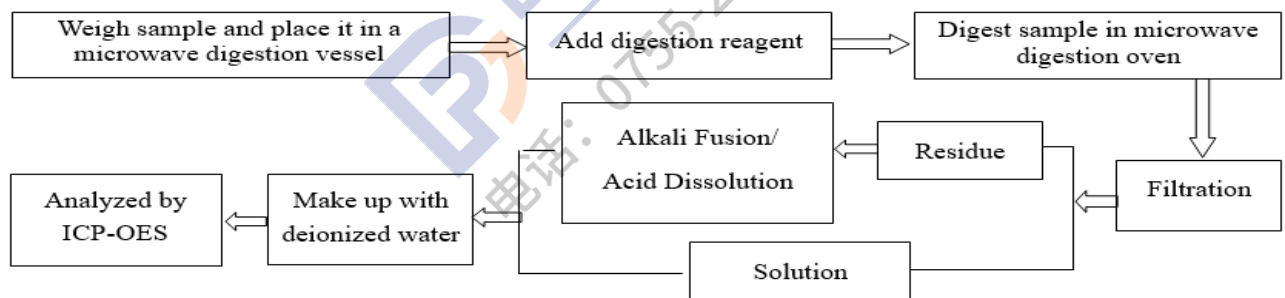
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## Test Process

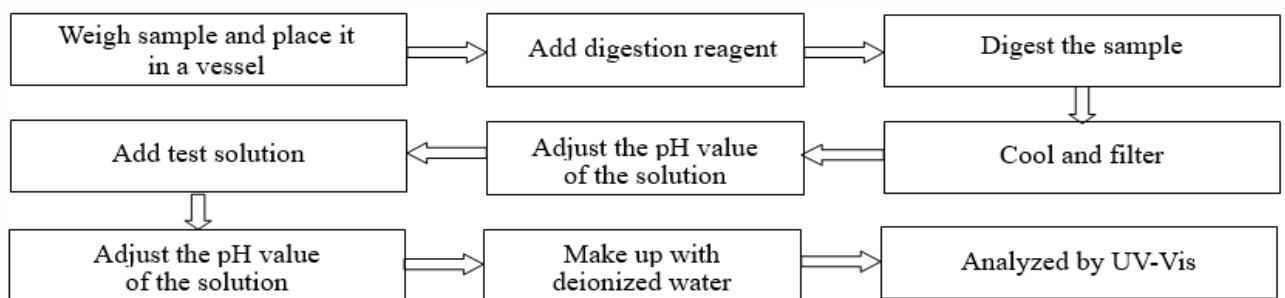
### 1. Lead (Pb), Cadmium (Cd), Chromium(Cr)



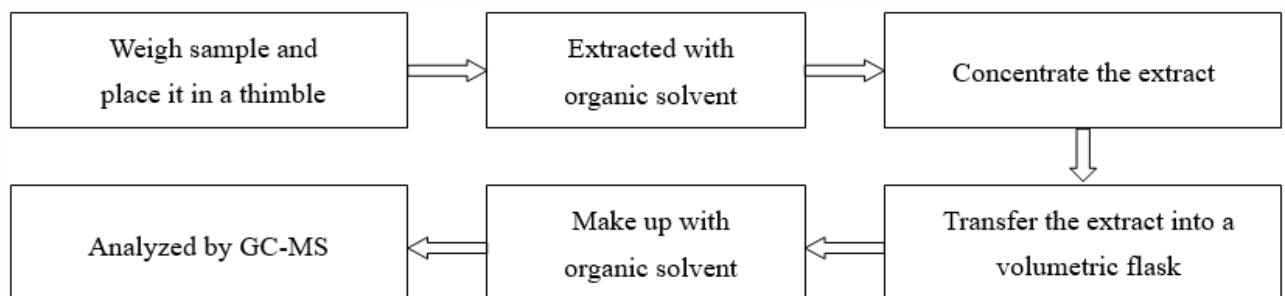
### 2. Mercury (Hg)



### 3. Hexavalent Chromium (Cr(VI))



### 4. Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)

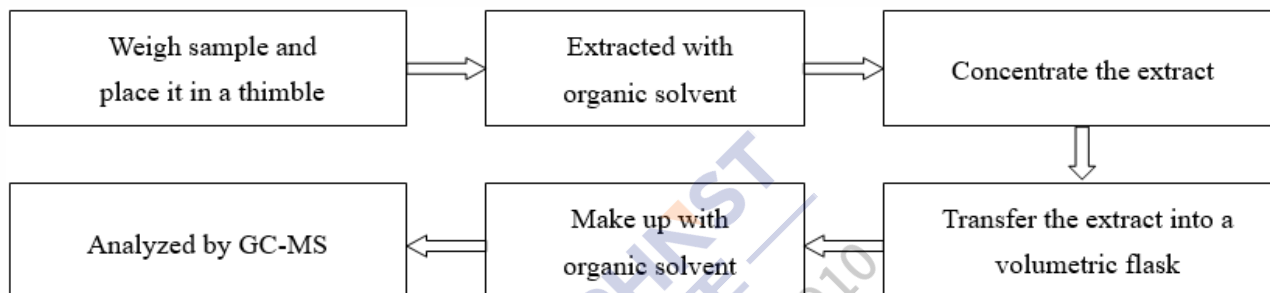


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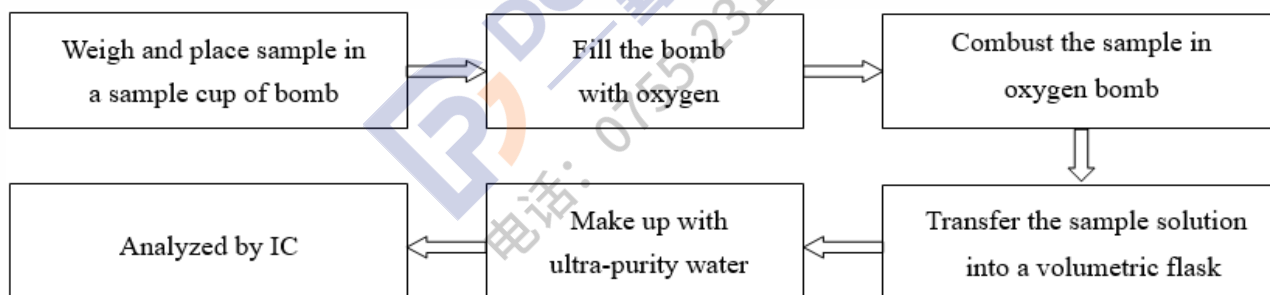
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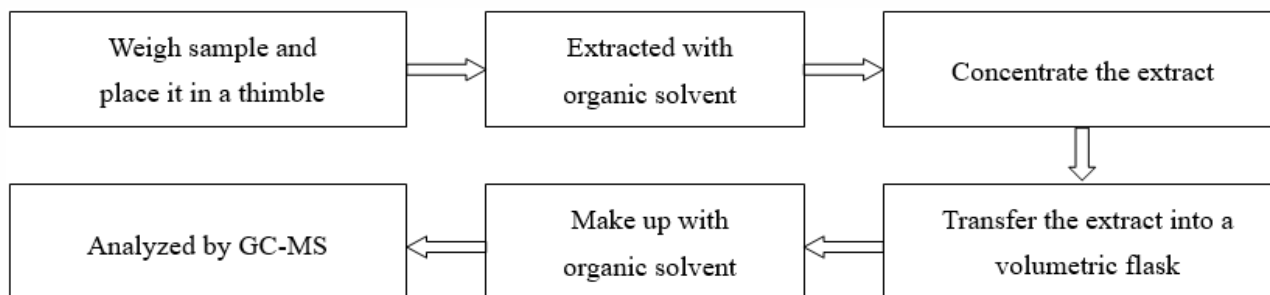
## 5. Phthalates (DBP, BBP, DEHP, DIBP)



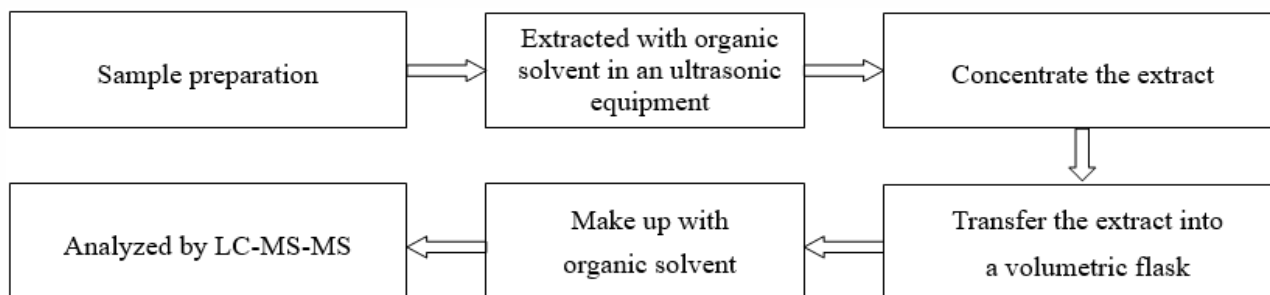
## 6. Chlorine (Cl), Bromine (Br)



## 7. Dimethyl fumarate (DMF)



## 8. Perfluorooctane Sulfonates(PFOS), Perfluorooctanoic Acid(PFOA)

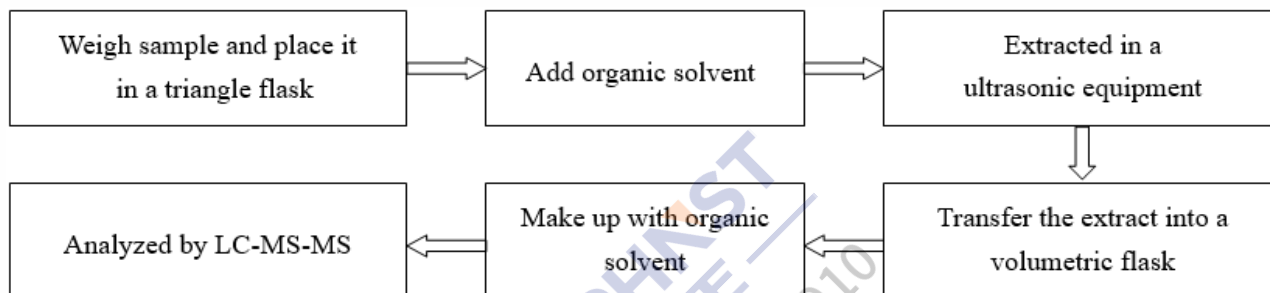


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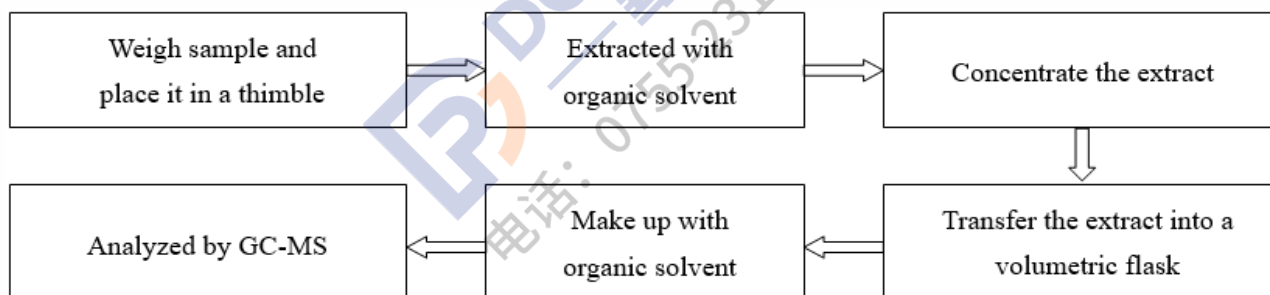
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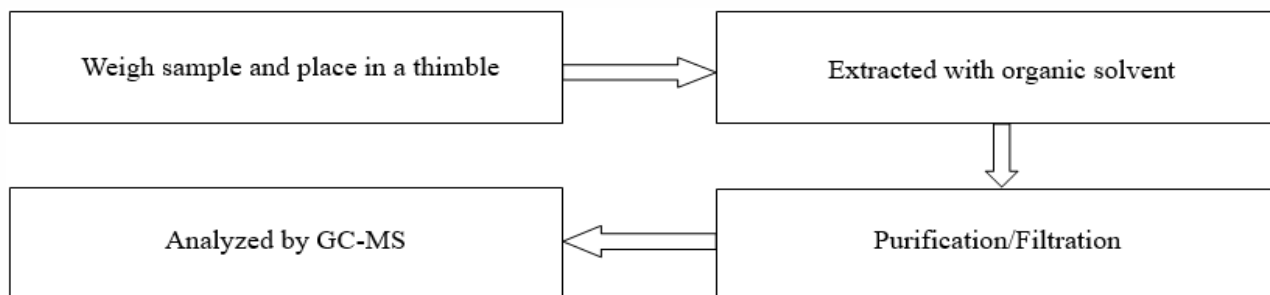
## 9. Bisphenol A (BPA)



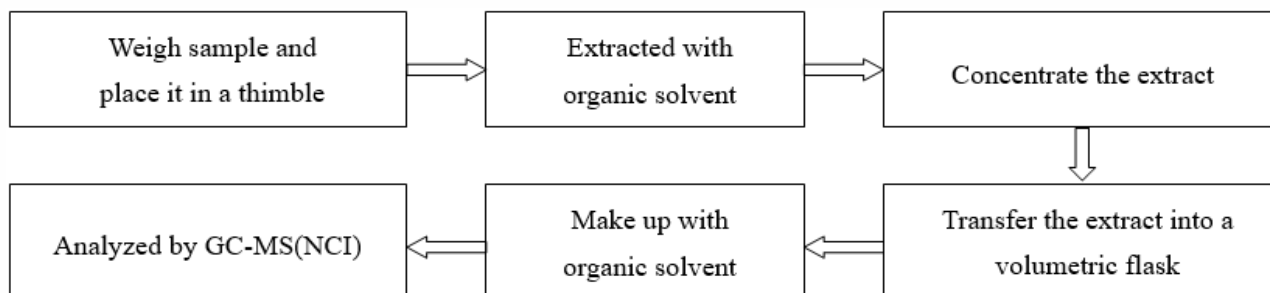
## 10. Phthalates



## 11. Polycyclic Aromatic Hydrocarbons (PAHs)



## 12. Middle Chain Chlorinated Paraffins (MCCPs)

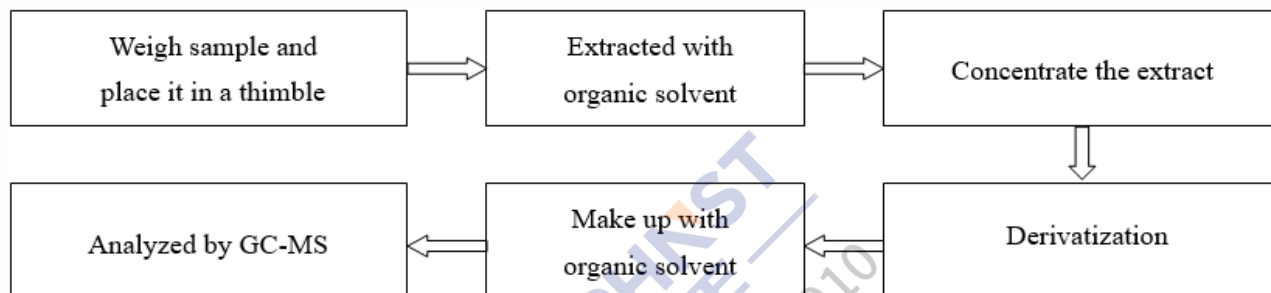


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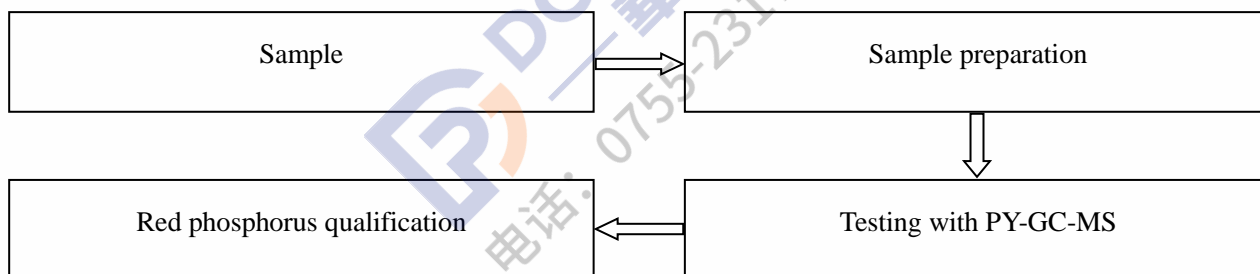
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## 13. Tetrabromobisphenol A (TBBP-A)



## 14. Red phosphorus



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## Photo(s) of the sample(s)



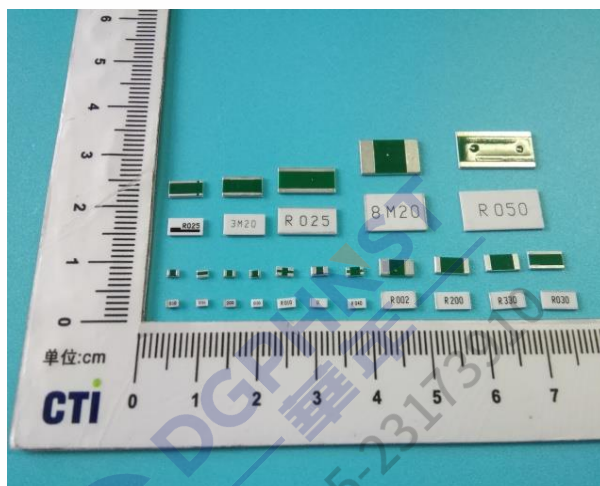
### Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

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

## Appendix

### Client Reference Photo (Non-tested sample)



### Statement:

1. The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.
2. The Appendix Information is/are the supplement(s) for the Report A2220114308101010.