



Test Report

Report No. A2200455712101001

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Company Name MITSUI HIGH-TEC (SHANGHAI) CO.,LTD
shown on Report
Address NO.2001 XINJIN QIAO ROAD EXPORT PROCESSING ZONE PUDONG
SHANGHAI CHINA

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

Sample Name A194+Ag
Sample Received Date Dec. 16, 2020
Testing Period Dec. 16, 2020 to Dec. 30, 2020

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), Arsenic(As), Beryllium(Be), Antimony(Sb), Hexabromocyclododecane (HBCDD), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Short Chain Chlorinated Paraffins (SCCPs), Polychlorinated Naphthalenes (PCNs), Poly Chloride Triphenyls (PCTs), Polychlorinated Biphenyls(PCBs), Organotin compounds, Phthalates, Polyvinyl Chloride (PVC), Perfluorooctanoic Acid (PFOA), Perfluorooctane Sulfonates(PFOS), Red phosphorus in the submitted sample(s).

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

Tested by Yingmei Liu

Reviewed by Summer Xu

Approved by Chen Kaimin

Date Dec. 30, 2020



Chen kaimin
Lab Manager

No. R201801410

Centre Testing International Pinbiao(Shanghai) Co., Ltd.

No.1351, Wanfang Road, Minhang District, Shanghai, China

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Conclusion

<u>Tested Sample</u>	<u>According to standard/directive</u>	<u>Result</u>
Submitted Sample	RoHS Directive 2011/65/EU with amendment (EU) 2015/863	PASS

PASS means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.

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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 62321-7-1:2015	UV-Vis
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
Arsenic(As)	Refer to US EPA 3050B:1996 & US EPA 6010D:2018*	ICP-OES
Beryllium(Be)	Refer to US EPA 3050B:1996 & US EPA 6010D:2018*	ICP-OES
Antimony(Sb)	Refer to US EPA 3050B:1996 & US EPA 6010D:2018*	ICP-OES
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3550C:2007 & US EPA 8270E:2017*	GC-MS
Fluorine (F)	Refer to EN 14582:2016	IC
Chlorine (Cl)	Refer to EN 14582:2016	IC
Bromine (Br)	Refer to EN 14582:2016	IC
Iodine (I)	Refer to EN 14582:2016	IC
Short Chain Chlorinated Paraffins (SCCPs)	Refer to US EPA 3550C:2007 & US EPA 8270E:2017*	GC-MS(NCI)
Polychlorinated Naphthalenes (PCNs)	Refer to US EPA 3550C:2007 & US EPA 8270E:2017*	GC-MS
Poly Chloride Triphenyls (PCTs)	Refer to US EPA 3550C:2007 & US EPA 8270D:2014*	GC-MS
Polychlorinated Biphenyls(PCBs)	Refer to US EPA 3550C:2007 & US EPA 8270E:2017*	GC-MS
Organotin compounds	Refer to ISO 17353:2004(E)*	GC-MS
Phthalates(DMEP,DHP,DPP,DIDP,DINP, DNOP,DIHP,DHNUP)	Refer to EN 14372:2004(E)*	GC-MS
Polyvinyl Chloride (PVC)	Refer to JY/T 001-1996*	FT-IR
Perfluorooctanoic Acid (PFOA)	CEN/TS 15968:2010*	LC-MS-MS/LC-MS
Perfluorooctane Sulfonates (PFOS)	CEN/TS 15968:2010*	LC-MS-MS/LC-MS
Red phosphorus [#]	Refer to GB/T 6040-2002, GB/T 9722-2006, GB/T 17359-2012, EPA 6010D-2014	FTIR, SEM/EDS, PY-GC-MS, ICP-OES

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Test Result(s)

Tested Item(s)	Result	MDL	Limit
Lead (Pb)	7 mg/kg	2 mg/kg	1000 mg/kg
Cadmium (Cd)	N.D.	2 mg/kg	100 mg/kg
Mercury (Hg)	N.D.	2 mg/kg	1000 mg/kg
Hexavalent Chromium (Cr(VI))	N.D. ▼	0.10 µg/cm ² (LOQ)	1000 mg/kg

Tested Item(s)	Result	MDL	Limit
Polybrominated Biphenyls(PBBs)			
Monobromobiphenyl	N.D.	5 mg/kg	1000 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	Limit
Polybrominated Diphenyl Ethers (PBDEs)			
Monobromodiphenyl ether	N.D.	5 mg/kg	1000 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	Limit
Phthalates (DBP, BBP, DEHP, DIBP)			
Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg

Tested Item(s)	Result	MDL
Arsenic (As)	N.D.	10 mg/kg

Tested Item(s)	Result	MDL
Beryllium (Be)	N.D.	10 mg/kg

Tested Item(s)	Result	MDL
Antimony (Sb)	N.D.	10 mg/kg

Tested Item(s)	Result	MDL
Hexabromocyclododecane (HBCDD)	N.D.	5 mg/kg

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Tested Item(s)	Result	MDL
Fluorine (F)	N.D.	10 mg/kg
Chlorine (Cl)	N.D.	10 mg/kg
Bromine (Br)	N.D.	10 mg/kg
Iodine (I)	N.D.	10 mg/kg

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

Tested Item(s)	Result	MDL
Polychlorinated Naphthalenes (PCNs)	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polychlorinated Triphenyls (PCTs)	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polychlorinated Biphenyls(PCBs)		
Monochlorobiphenyl	N.D.	5 mg/kg
Dichlorobiphenyl	N.D.	5 mg/kg
Trichlorobiphenyl	N.D.	5 mg/kg
Tetrachlorobiphenyl	N.D.	5 mg/kg
Pentachlorobiphenyl	N.D.	5 mg/kg
Hexachlorobiphenyl	N.D.	5 mg/kg
Heptachlorobiphenyl	N.D.	5 mg/kg
Octachlorobiphenyl	N.D.	5 mg/kg
Nonachlorobiphenyl	N.D.	5 mg/kg
Decachlorobiphenyl	N.D.	5 mg/kg

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Tested Item(s)	Result	MDL
Organotin compounds		
Dibutyltin (DBT)	N.D.	5 mg/kg
Tributyltin (TBT)	N.D.	5 mg/kg
Tributyltin oxide (TBTO)* ¹	N.D.	5 mg/kg
Diocetyl tin (DOT)	N.D.	5 mg/kg
Triphenyltin (TPHT)	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Phthalates		
Di-n-octyl phthalate (DNOP) CAS#:117-84-0	N.D.	50 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
Dipentyl phthalate (DPP) CAS#:131-18-0	N.D.	50 mg/kg
Diheptyl phthalate (DHP) CAS#:3648-21-3	N.D.	50 mg/kg
Bis(2-methoxyethyl) phthalate (DMEP) CAS#:117-82-8	N.D.	50 mg/kg
* ² 1,2-Benzenedicarboxylic acid, di-(C7-11)-branched and linear alkyl esters (DHNUP) CAS#:68515-42-4	N.D.	100 mg/kg
* ² 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP) CAS#:71888-89-6	N.D.	100 mg/kg

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Tested Item(s)	Result	MDL
Polyvinyl Chloride (PVC)	Negative	/

Tested Item(s)	Result	MDL
Perfluorooctanoic Acid (PFOA)	N.D.	0.01 mg/kg
Perfluorooctane Sulfonates(PFOS)	N.D.	0.01 mg/kg

Tested Item(s)	Result	MDL
Red phosphorus [#]	N.D.	500 mg/kg

Sample/Part Description Silvery/cupreous metal

Remark: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury, Arsenic, Beryllium, Antimony.

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL or LOQ)

-mg/kg = ppm = parts per million

-1000 mg/kg = 0.1%

-LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 $\mu\text{g}/\text{cm}^2$

-[▼]The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10 $\mu\text{g}/\text{cm}^2$. The coating is considered a non-Cr(VI) based coating.

-*¹= concentration value of Tributyltin oxide by the conversion from the test results of Tributyl Tins.

-*²= In view of the substances are established as UVCB substances(substances of unknown or variable composition, complex reaction products or biological materials) consisting of different and variable constituents, the test results are calculated based on the main constituents of the representative compounds for substances.

Note: [#] Indicates the item(s) is (are) fulfilled by subcontracted lab, and not in CNAS accreditation scope.

“*” indicates the method(s) is (are) not in CNAS accreditation scope.

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

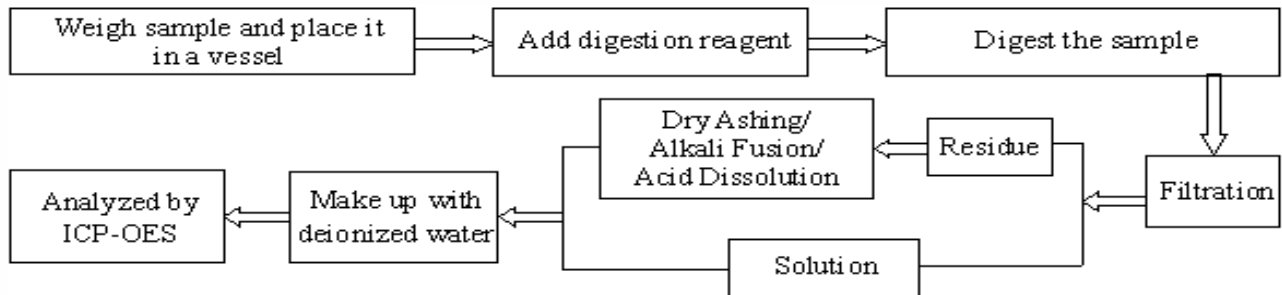
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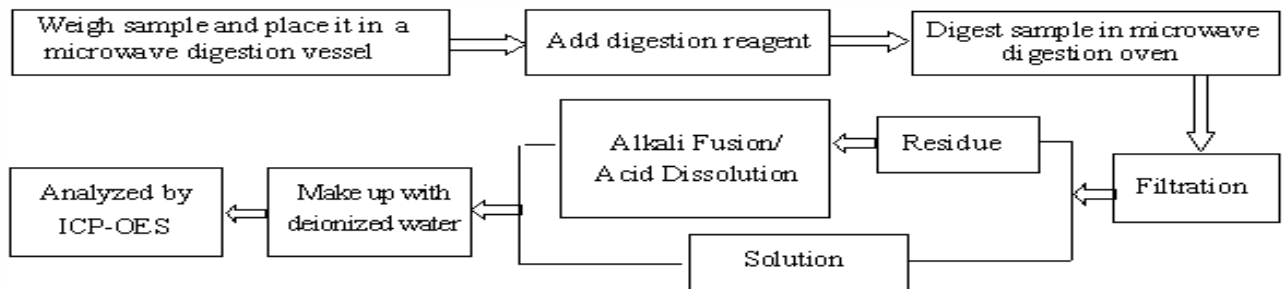
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Test Process

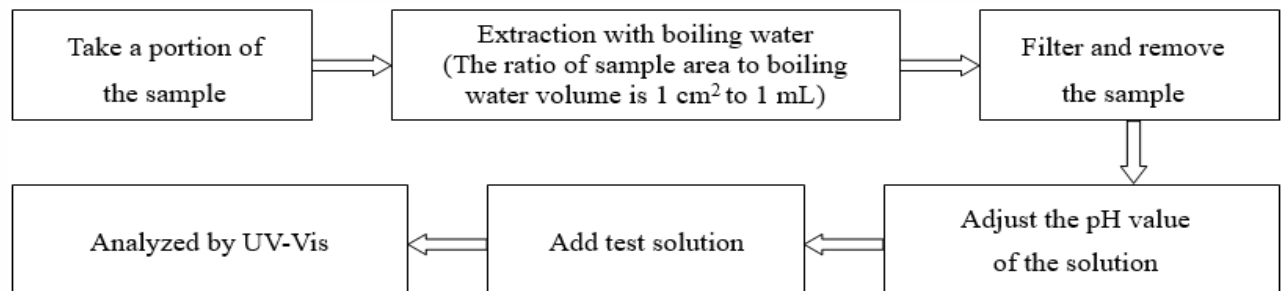
1. Lead(Pb), Cadmium(Cd)



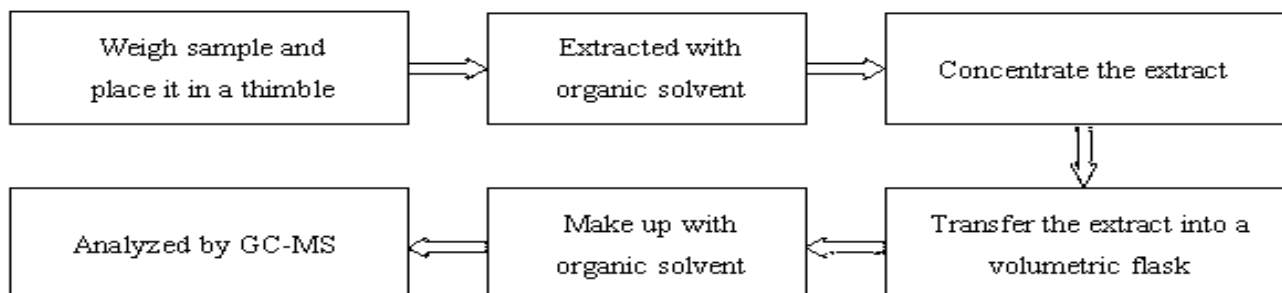
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))



4. PolybrominatedBiphenyls(PBBs), PolybrominatedDiphenyl Ethers (PBDEs)

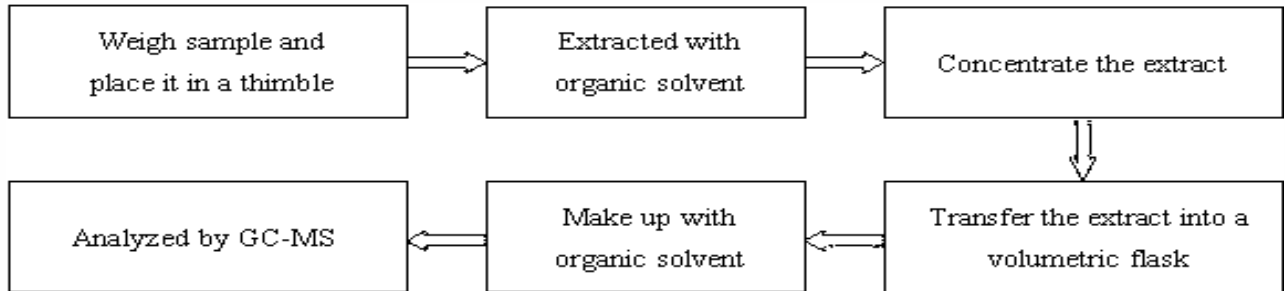


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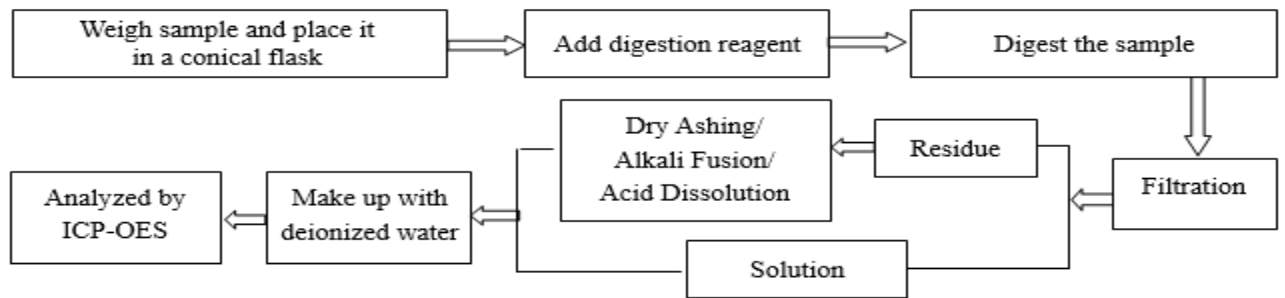
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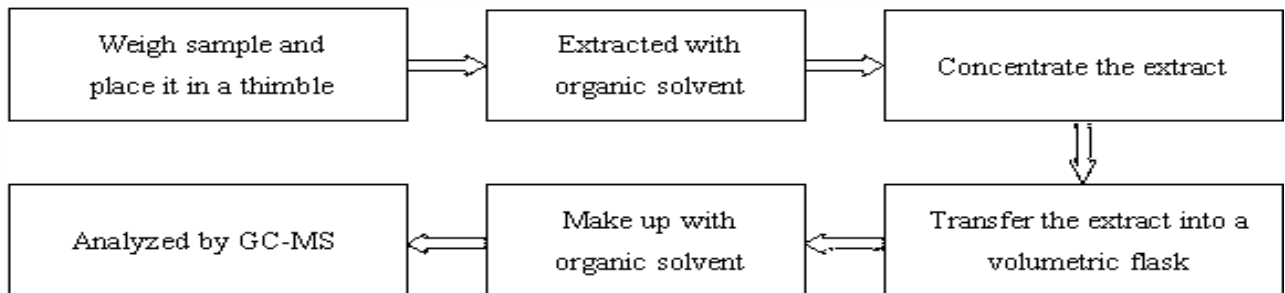
5. Phthalates



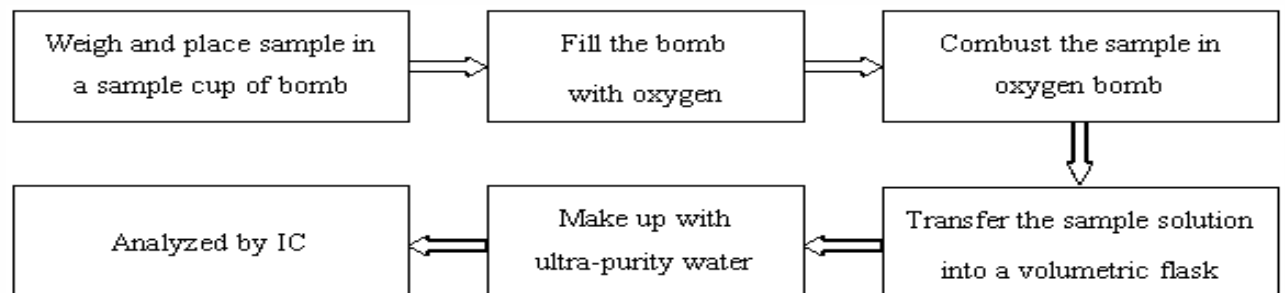
6. Arsenic(As), Beryllium(Be), Antimony(Sb)



7. Hexabromocyclododecane (HBCDD)



8. Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)

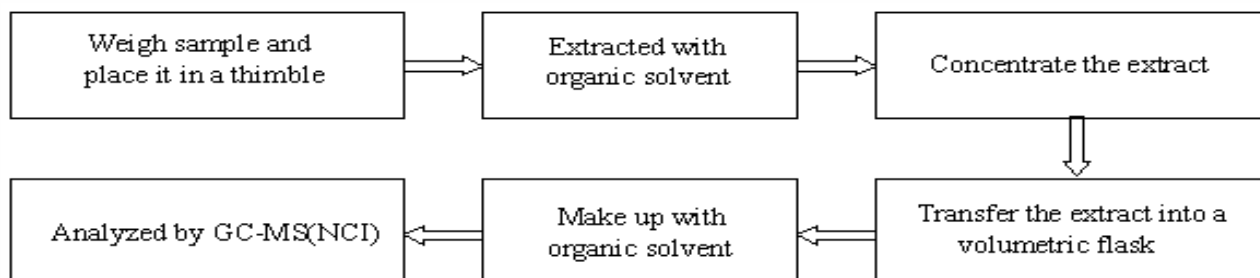


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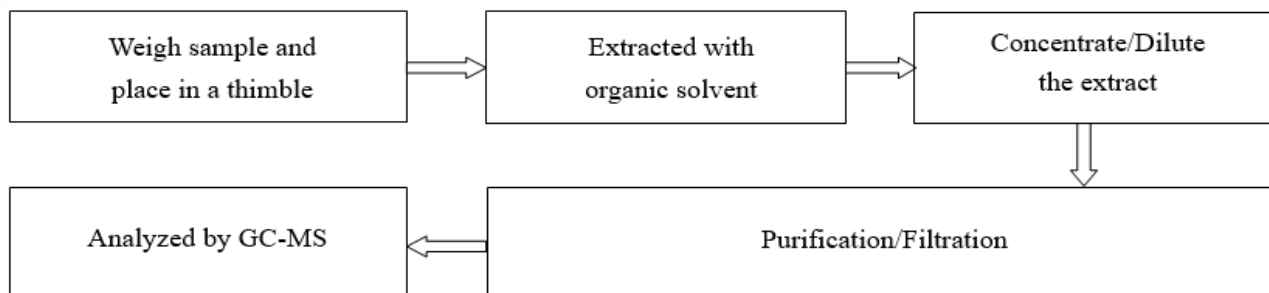
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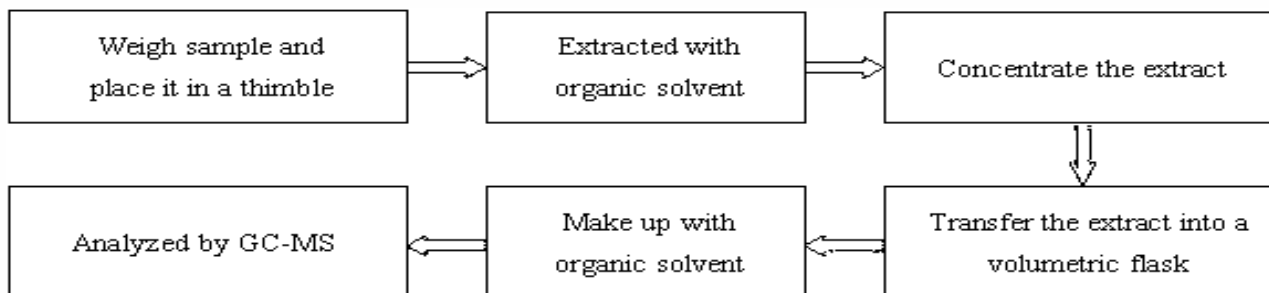
9. Short Chain Chlorinated Paraffins (SCCPs)



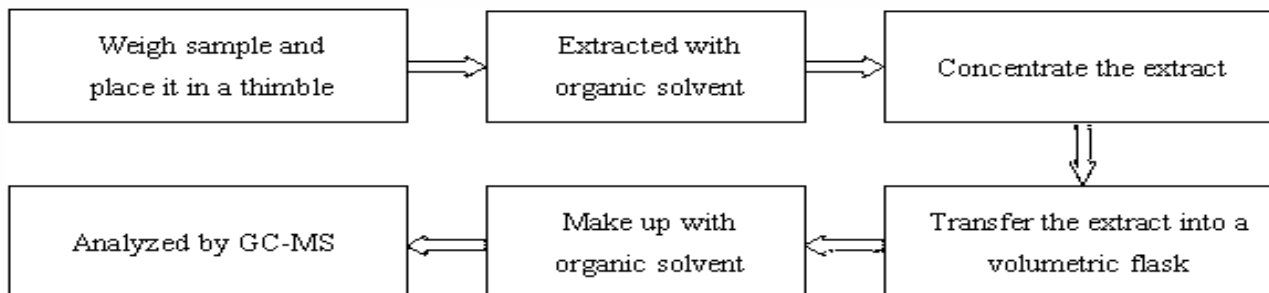
10. Polychlorinated Naphthalenes (PCNs)



11. Poly Chloride Triphenyls (PCTs)



12. Polychlorinated Biphenyls(PCBs)

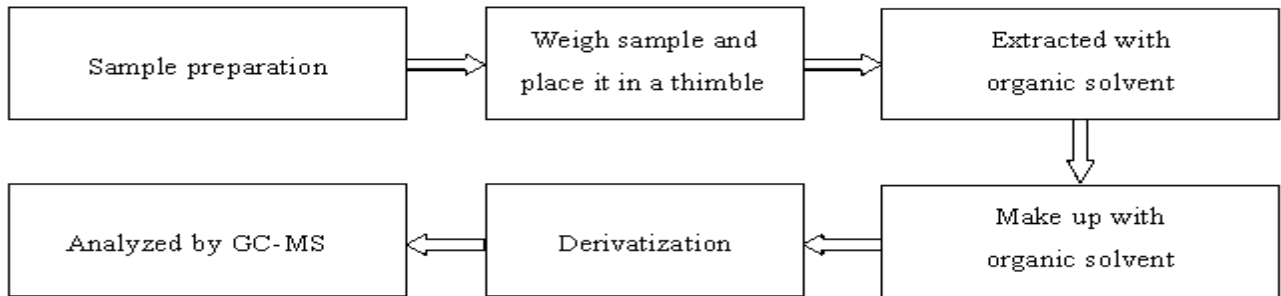


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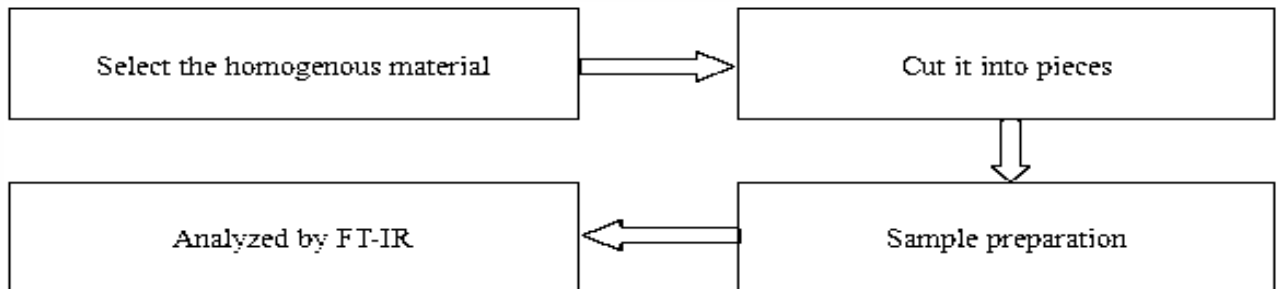
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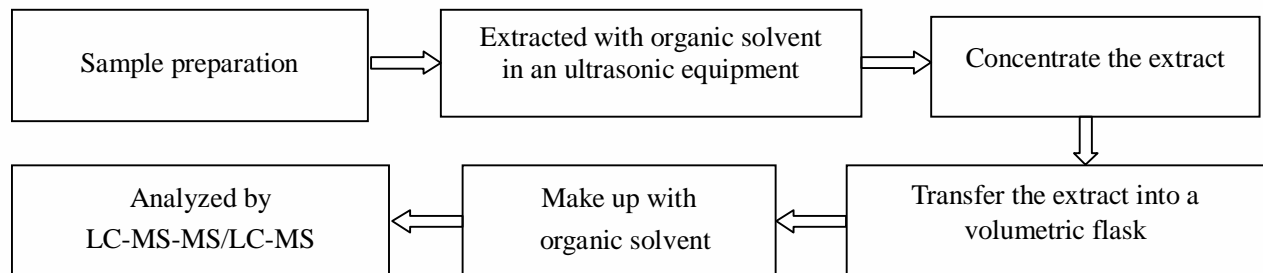
13. Organotin compounds



14. Polyvinyl Chloride (PVC)



15 Perfluorooctanoic Acid (PFOA), Perfluorooctane Sulfonates(PFOS)

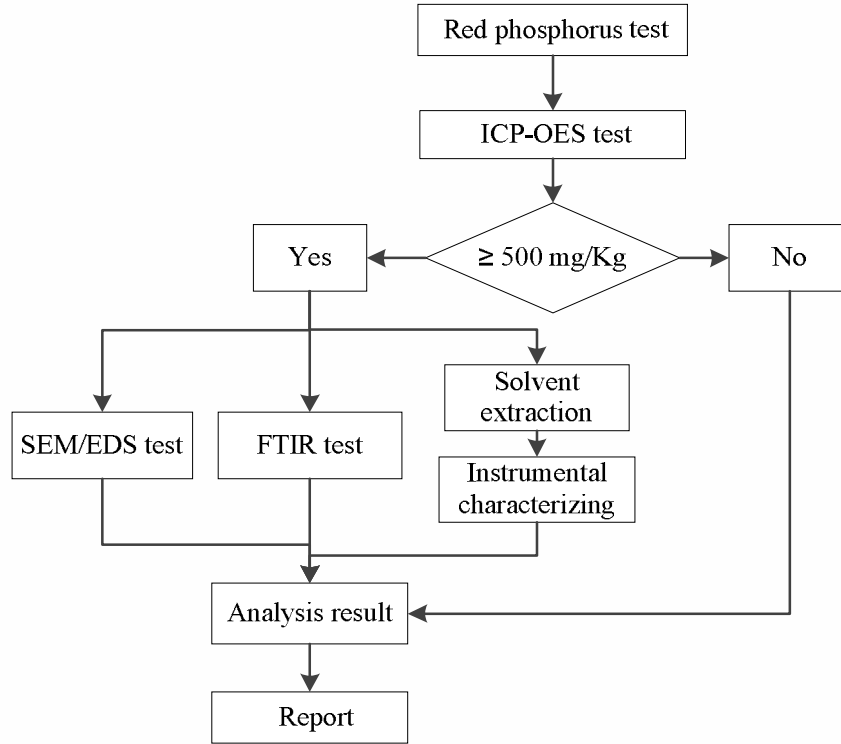


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16. Red phosphorus

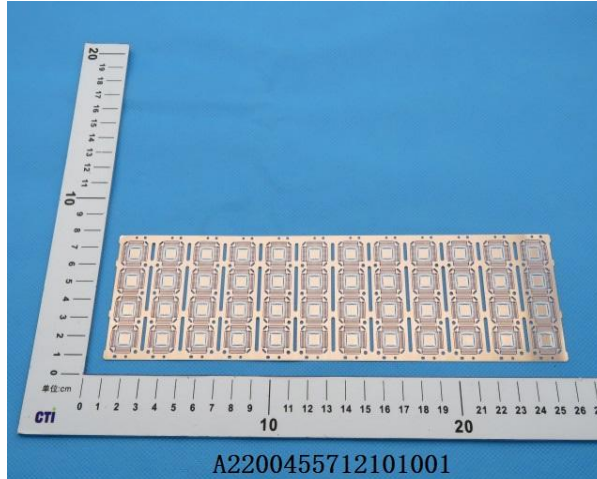


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Photo(s) of the sample(s)



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 ***