



检测报告

Test Report

报告编号 A224023581010101301E
Report No. A224023581010101301E

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报告抬头公司名称 东莞市兆科电子材料科技有限公司/杭州兆科电子材料有限公司/昆山兆科电子材料有限公司/兆科科技有限公司 /越南兆科科技有限公司
Company Name shown on Report DONGGUAN ZIITEK ELECTRONICAL MATERIAL AND TECHNOLOGY,LTD. / HANGZHOU ZIITEK ELECTRONICAL MATERIAL CO.,LTD. /KUNSHAN ZIITEK ELECTRONIC MATERIAL,LTD./ZIITEK TECHONLOGY, LTD./VIETNAM ZIITEK TECHNOLOGY LTD

地 址 东莞市横沥镇西城工业二区 B8 栋 /浙江省杭州市临安区杨岱路 33 号/江苏省苏州市昆山开发区大泽路 65 号/新北市新莊區幸福東路 62 號 7 樓 /越南太平省武书县明朗工业小区 CN4 地块
Address BUILDING B8, XICHENG INDUSTRIAL SECOND ZONE, HENGLI TOWN, DONGGUAN CITY /NO.33 YANGDAI ROAD, LINAN DISTRICT, HANGZHOU CITY, ZHEJIANG PROVINCE, CHINA/NO. 65, DAZE ROAD, KUNSHAN DEVELOPMENT ZONE, SUZHOU CITY, JIANGSU PROVINCE/7F., NO. 62, XINGFU E. RD., XINZHUANG DIST., NEW TAIPEI CITY 242040 , TAIWAN CHINA/PLOT CN4, MING LANG INDUSTRIAL CLUSTER, VU THU DISTRICT, THAI BINH PROVINCE, VIETNAM/ĐỊA CHỈ: LÔ CN4, CỤM CÔNG NGHIỆP MINH LĂNG, HUYỆN VŨ THƯ, TỈNH THÁI BÌNH, VIỆT NAM

以下测试之样品及样品信息由申请者提供并确认

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

样品名称 Sample Name	导热材料 Thermal conductive material
样品型号 Part No.	TIG780-18
样品颜色 Color	白色 white
样品接收日期	2024.04.27
Sample Received Date	Apr. 27, 2024
样品检测日期	2024.04.27-2024.05.07
Testing Period	Apr. 27, 2024 to May 7, 2024
检测要求	请参见下页。
Test Requested	Please refer to the following page(s).
检测依据/检测结果	请参见下页。
Test Method/Test Result(s)	Please refer to the following page(s).

批 准

郑晴涛

日 期

2024.05.07

Approve by

Date

郑晴涛

技术经理 Technical Manager

No. R179758889

华测检测认证集团股份有限公司

广东省深圳市宝安区新安街道兴东社区华测检测大楼

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检验检测专用章

Inspection & Testing Services

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结论 Conclusion

测试样品 Tested Sample	依据标准/指令 According to standard/directive	结果 Result
提交样品 Submitted Sample	欧盟 RoHS 指令 2011/65/EU 及其修订指令 (EU) 2015/863 RoHS Directive 2011/65/EU with amendment (EU) 2015/863	符合 PASS

符合表示检测结果满足欧盟RoHS指令2011/65/EU及其修订指令(EU) 2015/863要求的限值。

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.

检测要求

根据客户要求, 对所提交样品中的铅(Pb), 镉(Cd), 汞(Hg), 六价铬(Cr(VI)), 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP), 锑(Sb), 氟(F), 氯(Cl), 溴(Br), 碘(I), 邻苯二甲酸酯, 聚氯乙烯(PVC), 中链氯化石蜡(MCCPs), 四溴双酚 A (TBBP-A), 全氟辛酸(PFOA), 全氟辛烷磺酸(PFOS), 红磷进行测试。

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), Antimony(Sb), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Phthalates, Polyvinyl Chloride (PVC), Middle Chain Chlorinated Paraffins (MCCPs), Tetrabromobisphenol A (TBBP-A), Perfluorooctanoic Acid(PFOA), Perfluorooctane Sulfonates(PFOS), Red phosphorus in the submitted sample(s).

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检测依据 Test Method

测试项目 Tested Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅 Lead (Pb)	IEC 62321-5:2013	ICP-OES
镉 Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
汞 Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六价铬 Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017 和/或 IEC 62321-5:2013 测试总铬含量 IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
多溴联苯 Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
锑 Antimony(Sb)	参考 US EPA 3052:1996 & US EPA 6010D:2018 Refer to US EPA 3052:1996 & US EPA 6010D:2018	ICP-OES
氟 Fluorine (F)	参考 EN 14582:2016 Refer to EN 14582:2016	IC
氯 Chlorine (Cl)	参考 EN 14582:2016 Refer to EN 14582:2016	IC
溴 Bromine (Br)	参考 EN 14582:2016 Refer to EN 14582:2016	IC
碘 Iodine (I)	参考 EN 14582:2016 Refer to EN 14582:2016	IC
邻苯二甲酸酯 Phthalates	参考 EN 14372:2004(E) Refer to EN 14372:2004(E)	GC-MS
聚氯乙烯 Polyvinyl Chloride (PVC)*	参考 JY/T 001-1996 Refer to JY/T 001-1996	FT-IR
中链氯化石蜡 Middle Chain Chlorinated Paraffins (MCCPs)	参考 US EPA 3540C:1996 & US EPA 8270E:2018 Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS(NCI)
四溴双酚 A Tetrabromobisphenol A (TBBP-A)	参考 US EPA 3550C:2007 & US EPA 8270E:2018 Refer to US EPA 3550C:2007 & US EPA 8270E:2018	GC-MS
全氟辛酸 Perfluorooctanoic Acid(PFOA)	参考 US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
全氟辛烷磺酸 Perfluorooctane Sulfonates(PFOS)	参考 US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
红磷 Red phosphorus*	GB/T 9722-2006	PY-GC-MS

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检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
	013		
铅 Lead (Pb)	N.D.	2 mg/kg	1000 mg/kg
镉 Cadmium (Cd)	N.D.	2 mg/kg	100 mg/kg
汞 Mercury (Hg)	N.D.	2 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	N.D.	8 mg/kg	1000 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
	013		
多溴联苯 Polybrominated Biphenyls (PBBs)			
一溴联苯 Monobromobiphenyl	N.D.	5 mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	5 mg/kg	
三溴联苯 Tribromobiphenyl	N.D.	5 mg/kg	
四溴联苯 Tetrabromobiphenyl	N.D.	5 mg/kg	
五溴联苯 Pentabromobiphenyl	N.D.	5 mg/kg	
六溴联苯 Hexabromobiphenyl	N.D.	5 mg/kg	
七溴联苯 Heptabromobiphenyl	N.D.	5 mg/kg	
八溴联苯 Octabromobiphenyl	N.D.	5 mg/kg	
九溴联苯 Nonabromobiphenyl	N.D.	5 mg/kg	
十溴联苯 Decabromobiphenyl	N.D.	5 mg/kg	

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
	013		
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)			
一溴二苯醚 Monobromodiphenyl ether	N.D.	5 mg/kg	1000 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	5 mg/kg	
三溴二苯醚 Tribromodiphenyl ether	N.D.	5 mg/kg	
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	5 mg/kg	
五溴二苯醚 Pentabromodiphenyl ether	N.D.	5 mg/kg	
六溴二苯醚 Hexabromodiphenyl ether	N.D.	5 mg/kg	
七溴二苯醚 Heptabromodiphenyl ether	N.D.	5 mg/kg	
八溴二苯醚 Octabromodiphenyl ether	N.D.	5 mg/kg	
九溴二苯醚 Nonabromodiphenyl ether	N.D.	5 mg/kg	
十溴二苯醚 Decabromodiphenyl ether	N.D.	5 mg/kg	

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
	013		
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)			
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸丁基苄基酯 Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	013	
锑 Antimony (Sb)	N.D.	5 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	013	
氟 Fluorine (F)	N.D.	10 mg/kg
氯 Chlorine (Cl)	N.D.	10 mg/kg
溴 Bromine (Br)	N.D.	10 mg/kg
碘 Iodine (I)	N.D.	10 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	013	
邻苯二甲酸酯 Phthalates		
邻苯二甲酸二正辛酯 Di-n-octyl phthalate (DNOP) CAS#:117-84-0	N.D.	30 mg/kg
邻苯二甲酸二异壬酯 Di-isononyl phthalate (DINP) CAS#:28553-12-0,68515-48-0	N.D.	50 mg/kg
邻苯二甲酸二异癸酯 Di-iso-decyl phthalate (DIDP) CAS#:26761-40-0,68515-49-1	N.D.	50 mg/kg
邻苯二甲酸二甲酯 Dimethyl phthalate (DMP) CAS#:131-11-3*	N.D.	30 mg/kg

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	013	
邻苯二甲酸酯 Phthalates		
邻苯二甲酸二乙酯 Diethyl phthalate (DEP) CAS#:84-66-2*	N.D.	30 mg/kg
邻苯二甲酸二丙酯 Dipropyl phthalate (DPrP) CAS#:131-16-8*	N.D.	30 mg/kg
邻苯二甲酸二戊酯 Dipentyl phthalate (DPP/DPENP) CAS#:131-18-0*	N.D.	30 mg/kg
邻苯二甲酸二庚酯 Diheptyl phthalate (DHP) CAS#:3648-21-3*	N.D.	30 mg/kg
邻苯二甲酸二环己酯 Dicyclohexyl phthalate (DCHP) CAS#:84-61-7*	N.D.	30 mg/kg
邻苯二甲酸二异辛酯 Diisooctyl phthalate (DIOP) CAS#:27554-26-3*	N.D.	50 mg/kg
邻苯二甲酸二壬酯 Dinonyl phthalate (DNP) CAS#:84-76-4*	N.D.	30 mg/kg
己二酸二异壬酯 Diisononyl adipate (DINA) CAS#:33703-08-1*	N.D.	50 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	013	
聚氯乙烯 Polyvinyl Chloride (PVC)*	阴性 Negative#	/

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	013	
四溴双酚 A Tetrabromobisphenol A (TBBP-A)	N.D.	5 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	013	
中链氯化石蜡 Middle Chain Chlorinated Paraffins (MCCPs)	N.D.	100 mg/kg

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	013	
全氟辛酸 Perfluorooctanoic Acid (PFOA)	N.D.	0.010 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	013	
全氟辛烷磺酸 Perfluorooctane Sulfonates (PFOS)	N.D.	0.010 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	013	
红磷 Red phosphorus*	阴性 Negative	500 mg/kg

样品/部位描述 Sample/Part Description

序号 No.	CTI 样品 ID CTI Sample ID	描述 Description
1	013	白色液体 White liquid

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备注: 对于检测铅, 镉, 汞, 锑之样品已消解完全。

-N.D. = 未检出 (小于方法检出限)

-mg/kg = ppm = 百万分之一

-1000 mg/kg = 0.1%

-#阴性表示不含有聚氯乙烯(PVC)

-阴性 = 不含有(采用 PY-GC-MS 方法以测定样品裂解过程中裂解产物 P₄ 的定性红磷, 在磷酸盐和磷酸酯与部分强氧化或还原剂共存时, 可能会因裂解过程发生反应产生 P₄, 出现假阳性风险。结果仅供参考。)

-本报告的测试结果引自于报告 A2240235810101013E。

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

-MDL = Method Detection Limit

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

-mg/kg = ppm = parts per million

-1000 mg/kg = 0.1%

-#Negative = Not Contained Polyvinyl Chloride(PVC)

-Negative = Not Contained (The red phosphorus is qualified by PY-GC-MS method which detect pyrolysis products P₄ of red phosphorus. But there is a false positive risk by performing this method, since P₄ could also generate while the phosphate and organic phosphate coexist with some strong oxidizing or reductant agent in pyrolysis process. The result for reference only.)

-The test result(s) is(are) presented in reference to the result(s) that reported in A2240235810101013E.

注释: -“*”表示该项目/方法不在 CNAS 认可范围内。

-本报告中的数据结果供科研、教学、企业内部质量控制、企业产品研发等目的用。

Note: -“*” indicates the item(s)/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.

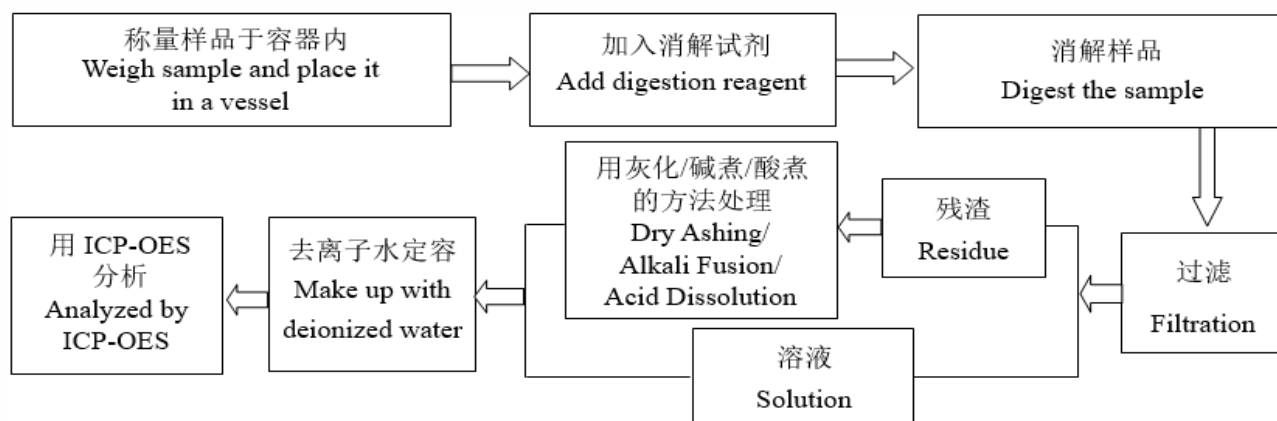
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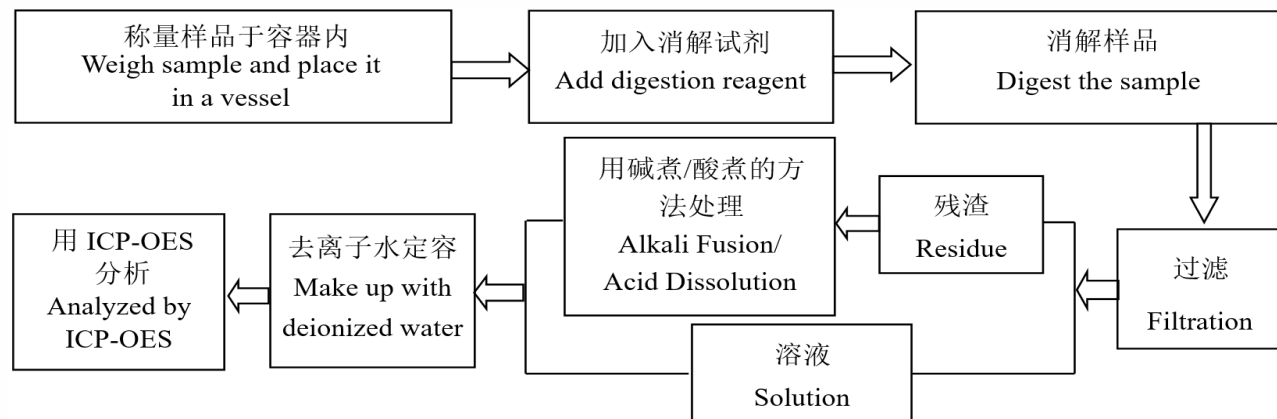
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检测流程 Test Process

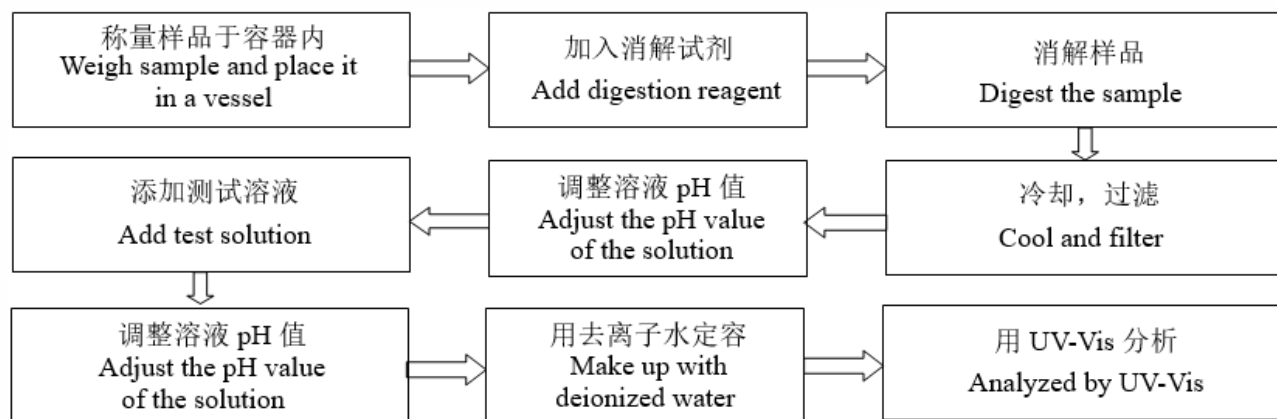
1. 铅 Lead (Pb), 镉 Cadmium (Cd), 铬 Chromium(Cr)



2. 汞 Mercury (Hg)



3. 六价铬 Hexavalent Chromium (Cr(VI))

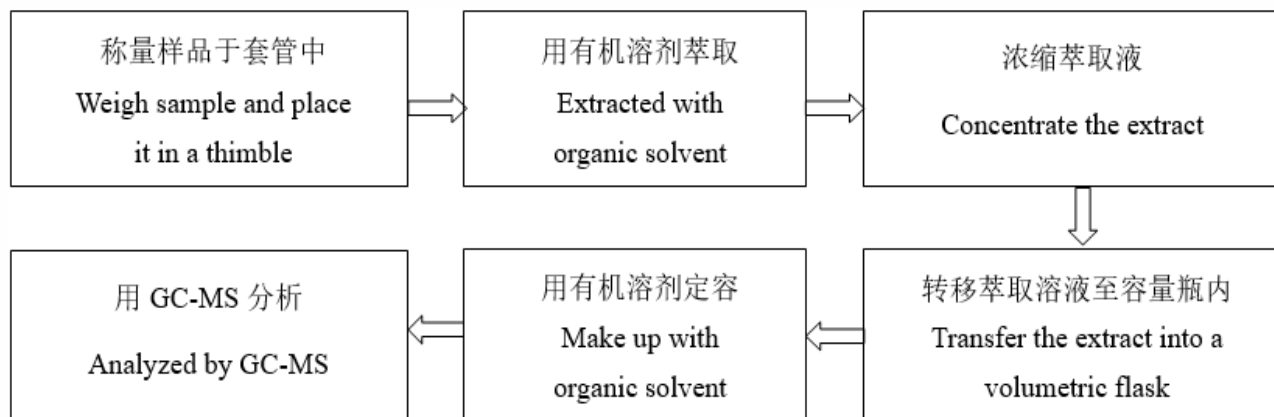


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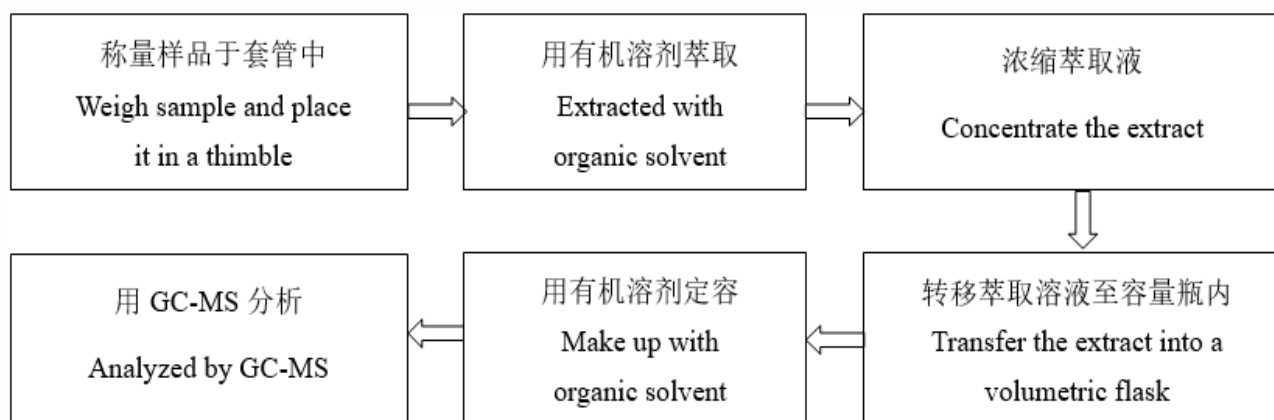
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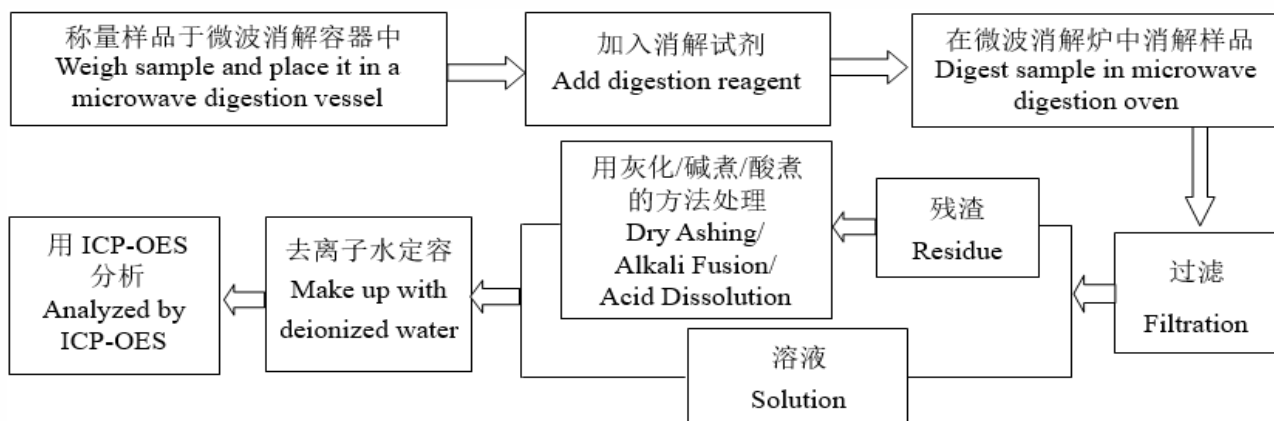
4. 多溴联苯 Polybrominated Biphenyls (PBBs), 多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)



5. 邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)



6. 锑 Antimony(Sb)

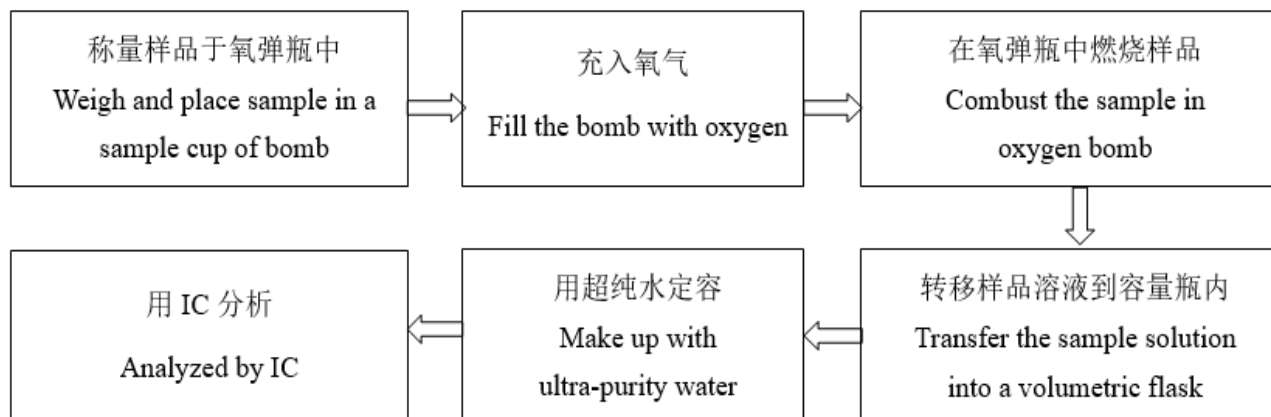


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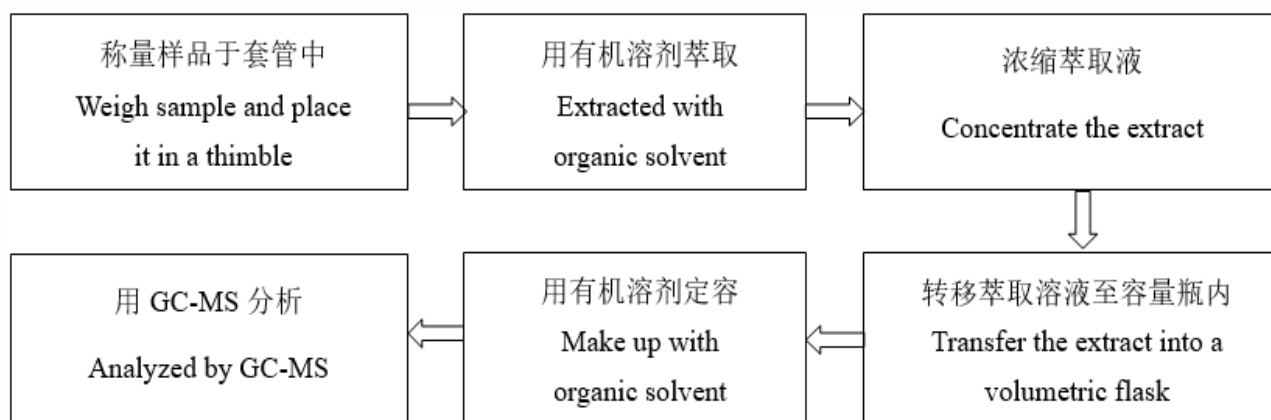
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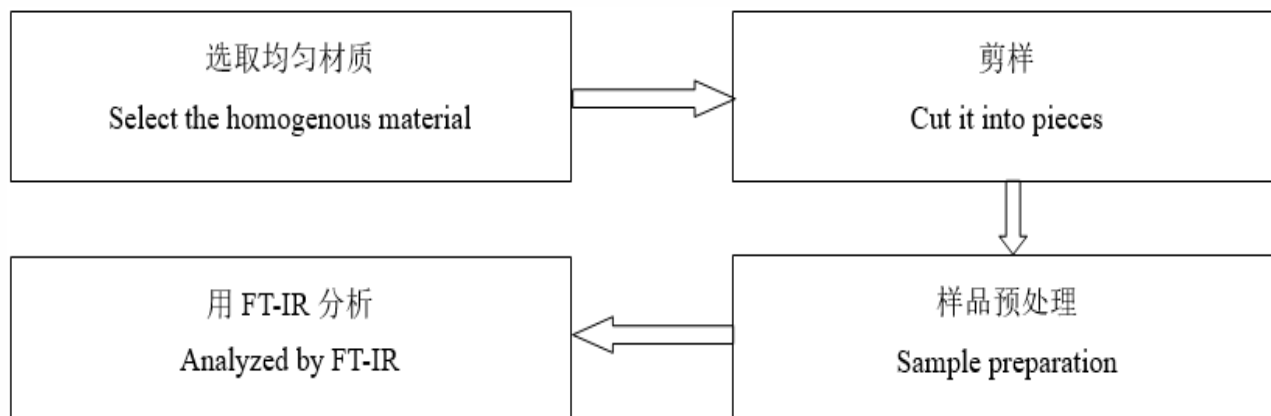
7. 氟 Fluorine (F), 氯 Chlorine (Cl), 溴 Bromine (Br), 碘 Iodine (I)



8. 邻苯二甲酸酯 Phthalates



9. 聚氯乙烯 Polyvinyl Chloride (PVC)

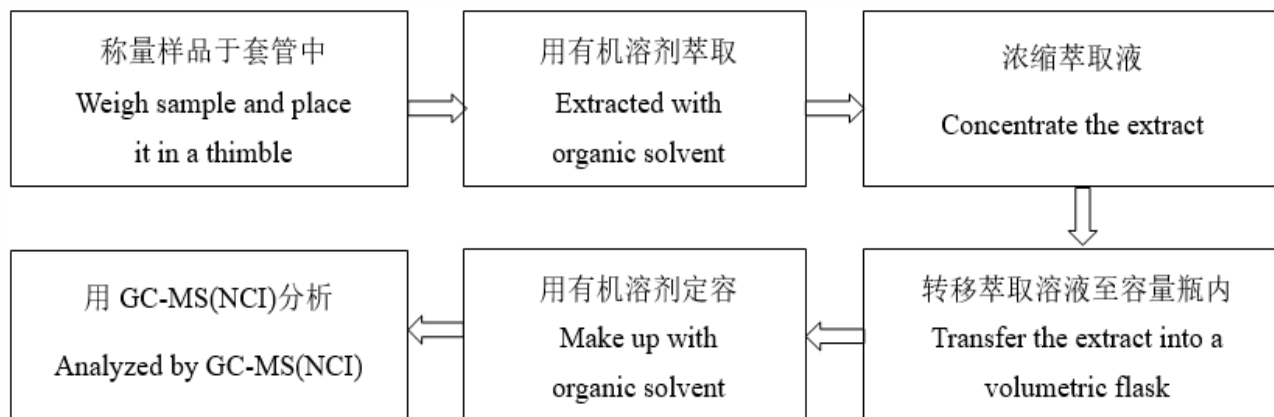


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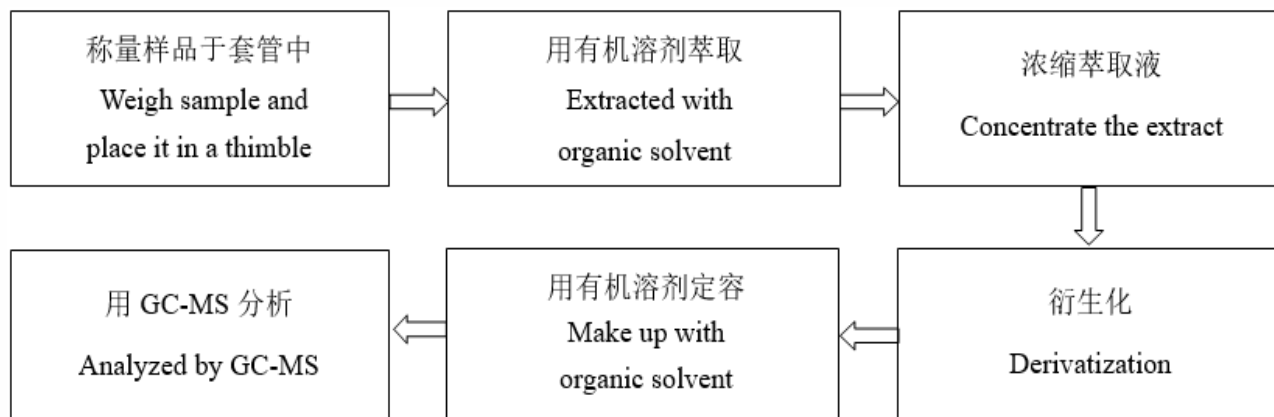
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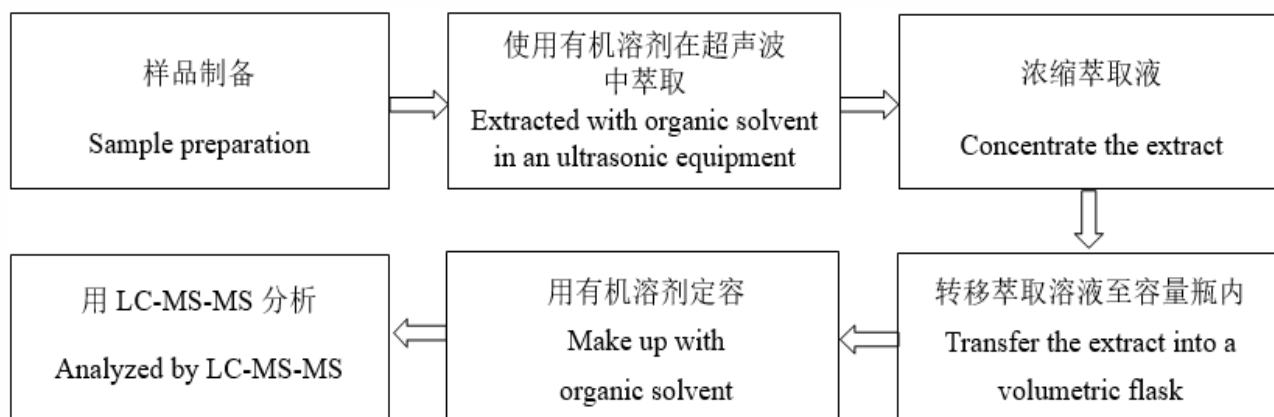
10. 中链氯化石蜡 Middle Chain Chlorinated Paraffins (MCCPs)



11. 四溴双酚 A Tetrabromobisphenol A (TBBP-A)



12. 全氟辛酸 (PFOA) Perfluorooctanoic Acid (PFOA), 全氟辛烷磺酸 (PFOS) Perfluorooctane Sulfonates (PFOS)

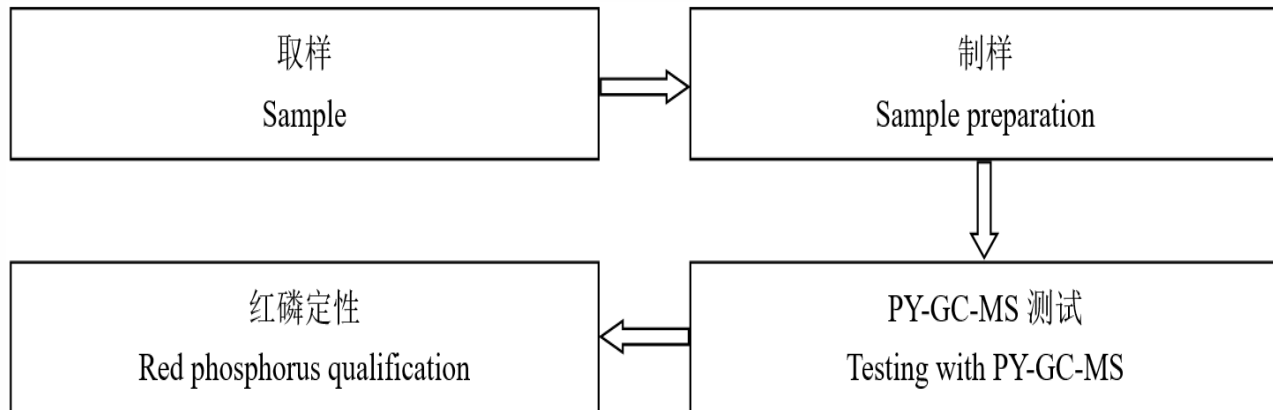


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13. 红磷 Red phosphorus



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样品图片

Photo(s) of the sample(s)



声明 Statement:

1. 检测报告无批准人签字、“专用章”及报告骑缝章无效;
This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. 报告抬头公司名称及地址、样品及样品信息由申请者提供, 申请者应对其真实性负责, CTI 未核实其真实性;
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. 本报告检测结果仅对受测样品负责;
The result(s) shown in this report refer(s) only to the sample(s) tested;
4. 除非另有说明, 报告参照 ILAC-G8:09/2019 / CNAS-GL015:2022 使用简单接受 (w=0) 二元判定规则进行符合性判定; Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019 / CNAS-GL015:2022;
5. 未经 CTI 书面同意, 不得部分复制本报告;
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6. 如检测报告中的英文内容与中文内容有差异, 以中文为准。
In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** 报告结束 ***
*** End of Report ***