

检测报告
Test Report报告编号 A2240756567101001ER3
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报告抬头公司名称 山东芯诺电子科技股份有限公司
Company Name SHANDONG XINNUO ELECTRONIC SCIENCE AND TECHNOLOGY CO., LTD
shown on Report
地 址 中国山东省济宁市兖州区经济开发区永安路1号
Address NO. 1, YONGAN ROAD, ECONOMIC DEVELOPMENT ZONE, YANZHOU DISTRICT,
JINING CITY, SHANDONG PROVINCE, P.R.CHINA

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 GPP蒸银芯片
Sample Name GPP Ti-Ni-Ag Chips
材料名称 单品硅衬底, 填充二氧化硅玻璃, 表面蒸镀钛镍银
Material Single silicon substrate, filled with silica glass, surface coated with titanium nickel silver by evaporation
样品接收日期 2024.12.03
Sample Received Date Dec. 3, 2024
样品检测日期 2024.12.03-2024.12.10
Testing Period Dec. 3, 2024 to Dec. 10, 2024

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), 砷(As), 铍(Be), 锑(Sb), 氟(F), 氯(Cl), 溴(Br), 碘(I), 六溴环十二烷(HBCDD), 四溴双酚A(TBBP-A), 中链氯化石蜡(MCCPs), 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), Arsenic(As), Beryllium(Be), Antimony(Sb), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Hexabromocyclododecane (HBCDD), Tetrabromobisphenol A (TBBP-A), Middle Chain Chlorinated Paraffins (MCCPs), Red phosphorus in the submitted sample(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).



方理松

方理松

授权签字人 Lab Authorized Signatory

检验检测专用章
Inspection & Testing
CTI Building, Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China日 期
Date

2025.01.07

No. R294347556

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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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.

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检测依据 Test Method

测试项目 Test 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 62321-12:2023	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-12:2023	GC-MS
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-12:2023	GC-MS
砷 Arsenic(As)	参考US EPA 3052:1996 & US EPA 6010D:2018 Refer to US EPA 3052:1996 & US EPA 6010D:2018	ICP-OES
铍 Beryllium(Be)	参考US EPA 3052:1996 & US EPA 6010D:2018 Refer to US EPA 3052:1996 & US EPA 6010D:2018	ICP-OES
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)	EN 14582:2016	IC
氯 Chlorine (Cl)	EN 14582:2016	IC
溴 Bromine (Br)	EN 14582:2016	IC
碘 Iodine (I)	EN 14582:2016	IC
六溴环十二烷 Hexabromocyclododecane (HBCDD)	参考US EPA 3540C:1996 & US EPA 8270E:2018 Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS
四溴双酚A Tetrabromobisphenol A (TBBP-A)	参考US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS

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测试项目 Test Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
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)
红磷 Red phosphorus* ¹	参考GB/T 6040-2002, GB/T 9722-2006, GB/T 17359-2012, EPA 6010D:2014 Refer to GB/T 6040-2002, GB/T 9722-2006, GB/T 17359-2012, EPA 6010D:2014	ICP-OES, PY-GC-MS, FTIR, EM ICP-OES

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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
	001		
铅 Lead (Pb)	17813 mg/kg*	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
	001		
多溴联苯 Polybrominated Biphenyls (PBBs)			
一溴联苯 Monobromobiphenyl	N.D.	25 mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	25 mg/kg	
三溴联苯 Tribromobiphenyl	N.D.	25 mg/kg	
四溴联苯 Tetrabromobiphenyl	N.D.	25 mg/kg	
五溴联苯 Pentabromobiphenyl	N.D.	25 mg/kg	
六溴联苯 Hexabromobiphenyl	N.D.	25 mg/kg	
七溴联苯 Heptabromobiphenyl	N.D.	25 mg/kg	
八溴联苯 Octabromobiphenyl	N.D.	25 mg/kg	
九溴联苯 Nonabromobiphenyl	N.D.	25 mg/kg	
十溴联苯 Decabromobiphenyl	N.D.	25 mg/kg	

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
	001		
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)			
一溴二苯醚 Monobromodiphenyl ether	N.D.	25 mg/kg	1000 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	25 mg/kg	
三溴二苯醚 Tribromodiphenyl ether	N.D.	25 mg/kg	
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	25 mg/kg	
五溴二苯醚 Pentabromodiphenyl ether	N.D.	25 mg/kg	
六溴二苯醚 Hexabromodiphenyl ether	N.D.	25 mg/kg	
七溴二苯醚 Heptabromodiphenyl ether	N.D.	25 mg/kg	
八溴二苯醚 Octabromodiphenyl ether	N.D.	25 mg/kg	
九溴二苯醚 Nonabromodiphenyl ether	N.D.	25 mg/kg	
十溴二苯醚 Decabromodiphenyl ether	N.D.	25 mg/kg	

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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
	001		
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	
	001		
砷 Arsenic (As)	N.D.	10 mg/kg	
铍 Beryllium (Be)	N.D.	2 mg/kg	
锑 Antimony (Sb)	N.D.	5 mg/kg	
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	
	001		
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	
	001		
六溴环十二烷 Hexabromocyclododecane (HBCDD)	N.D.	5 mg/kg	
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	
	001		
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	
	001		
中链氯化石蜡 Middle Chain Chlorinated Paraffins (MCCPs)	N.D.	100 mg/kg	

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检测结果 Test Result(s)

Table with 3 columns: Tested Item(s), Result, Method Detection Limit MDL. Row 1: Red phosphorus*1, N.D., 500 mg/kg.

样品/部位描述 Sample/Part Description

Table with 3 columns: No., CTI Sample ID, Description. Row 1: 1, 001, Chip (Tested as a whole).

备注: 对于检测铅, 镉, 汞, 砷, 铍, 锑之样品已消解完全。
-按照目前手段, 样品无法进一步拆分, 样品整体测试, 测试结果不代表整体测试样品中任何一种单一材质的含量。
-*根据客户声明, 样品涉及欧盟RoHS指令2011/65/EU豁免项第7(c)-I条: 电气电子元件的玻璃或陶瓷中的铅, 电容器的介电陶瓷除外, 如压电玻璃或陶瓷装置。
-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%

Remark: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury, Arsenic, Beryllium, Antimony.
-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.
-*According to the client's statement, the material of the sample(s) fall into exemption items 7(c)-I according to EU Directive 2011/65/EU: Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million
-1000 mg/kg = 0.1%

注释: -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。
-“*1”表示该项目/方法不在CNAS认可范围内。
-本报告于原报告(报告编号A2240756567101001ER2)基础上增加了CNAS章, 增加了注释“*1”表示该项目/方法不在CNAS认可范围内。”。本报告替换原报告A2240756567101001ER2, 自本报告签发之日起, 原报告A2240756567101001ER2作废。
Note: -The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.
-“*1”Indicates the method(s)/ item(s) is/are not in CNAS accreditation scope.
-This testing report added CNAS, add Note “*1”Indicates the method(s)/ item(s) is/are not in CNAS accreditation scope.” seal based on the original report of No. A2240756567101001ER2. This testing report displaces the original one which was invalid since the date of this testing report released.

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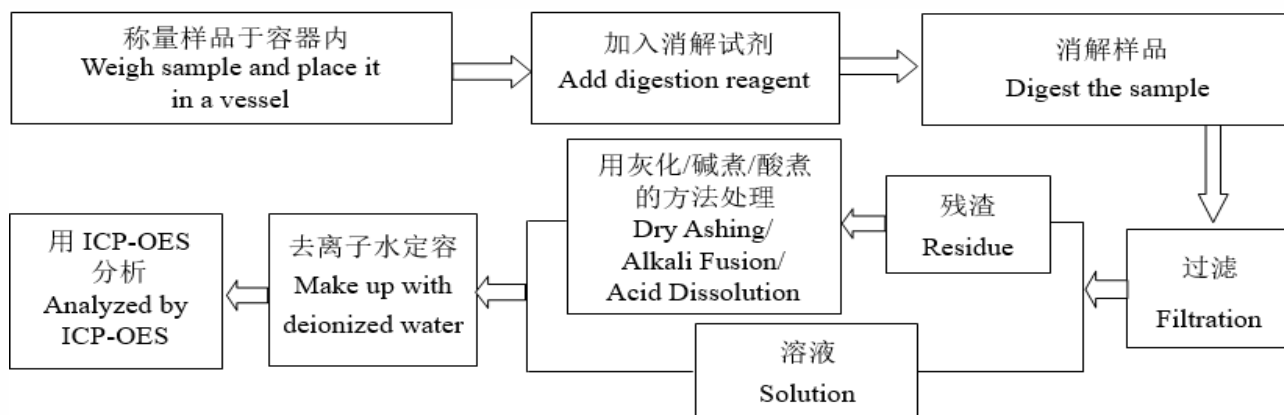
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检测流程 Test Process

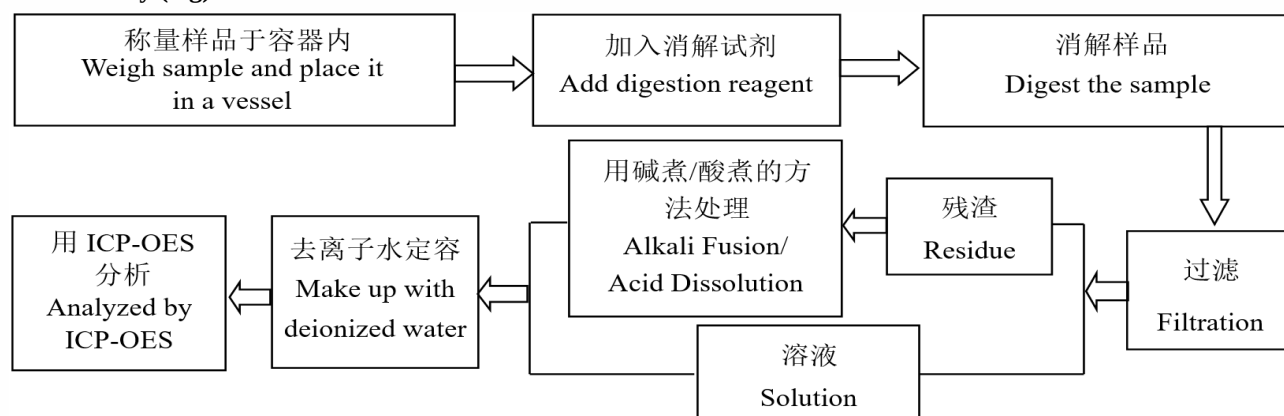
1. 铅(Pb), 镉(Cd), 铬(Cr)

Lead (Pb), Cadmium (Cd), Chromium (Cr)



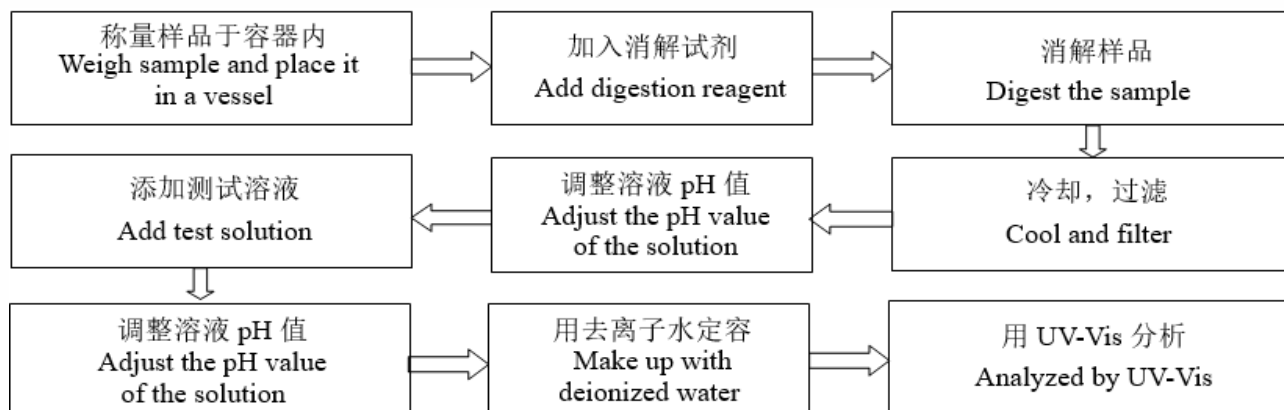
2. 汞(Hg)

Mercury (Hg)



3. 六价铬(Cr(VI))

Hexavalent Chromium (Cr(VI))



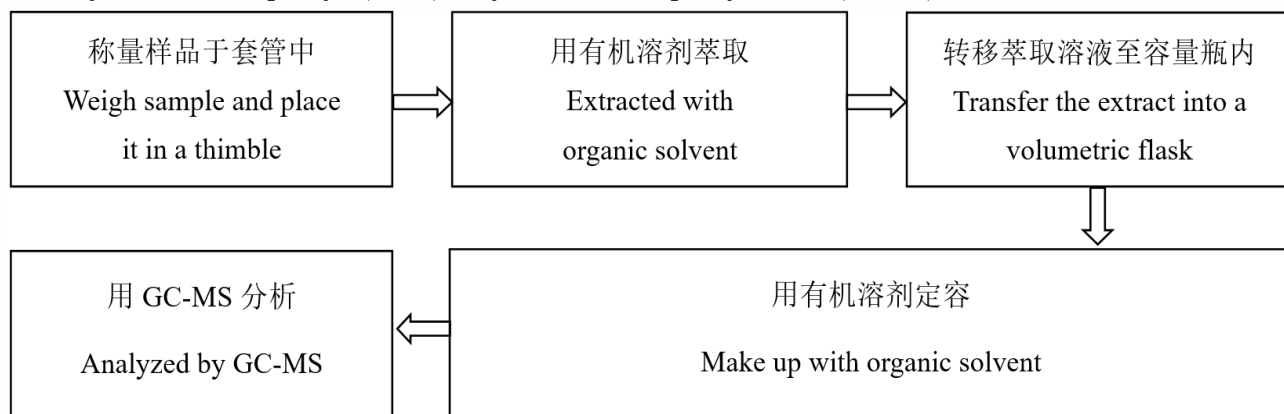
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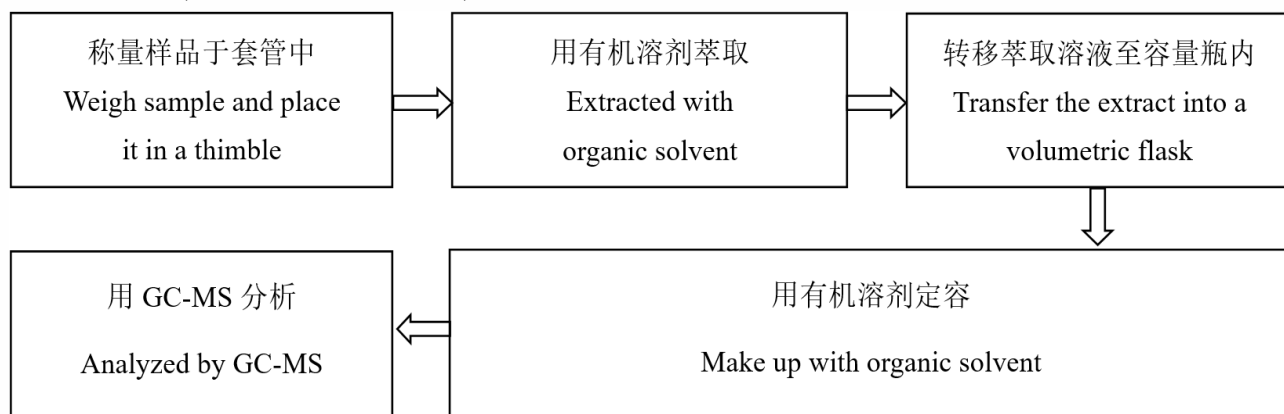
4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)

Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)



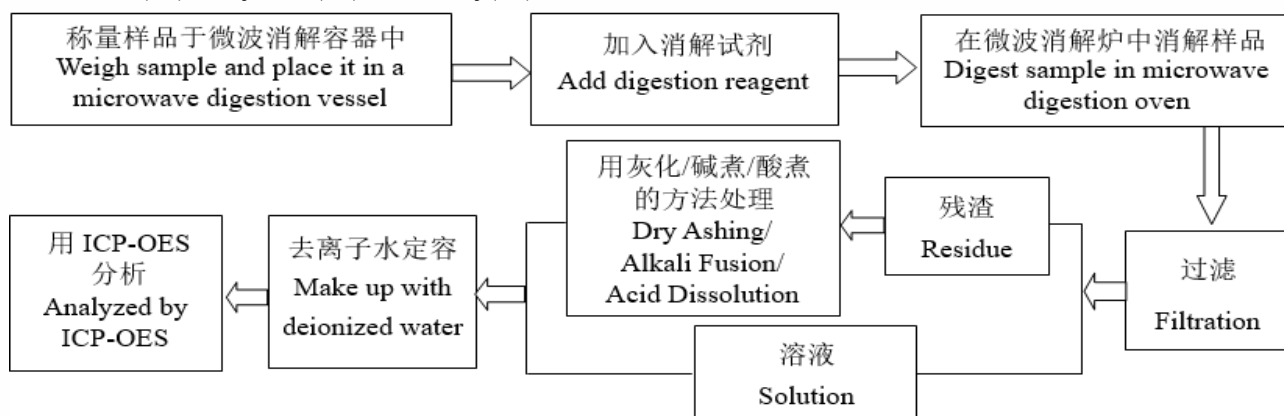
5. 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP)

Phthalates (DBP, BBP, DEHP, DIBP)



6. 砷(As), 铍(Be), 锑(Sb)

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

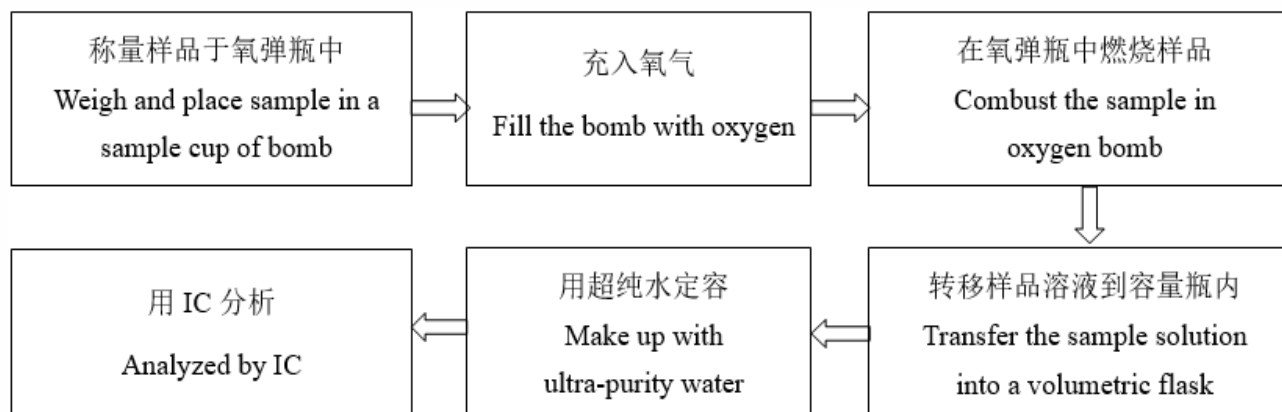


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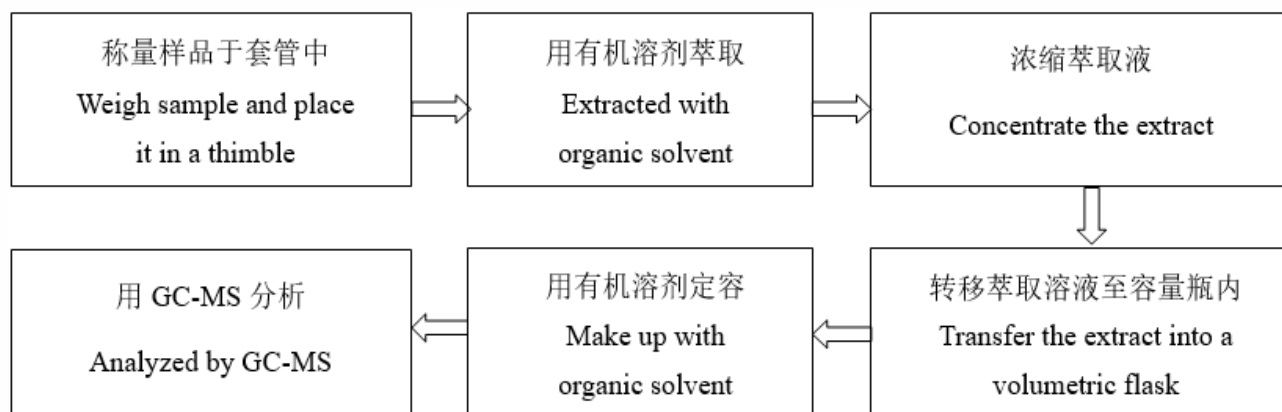
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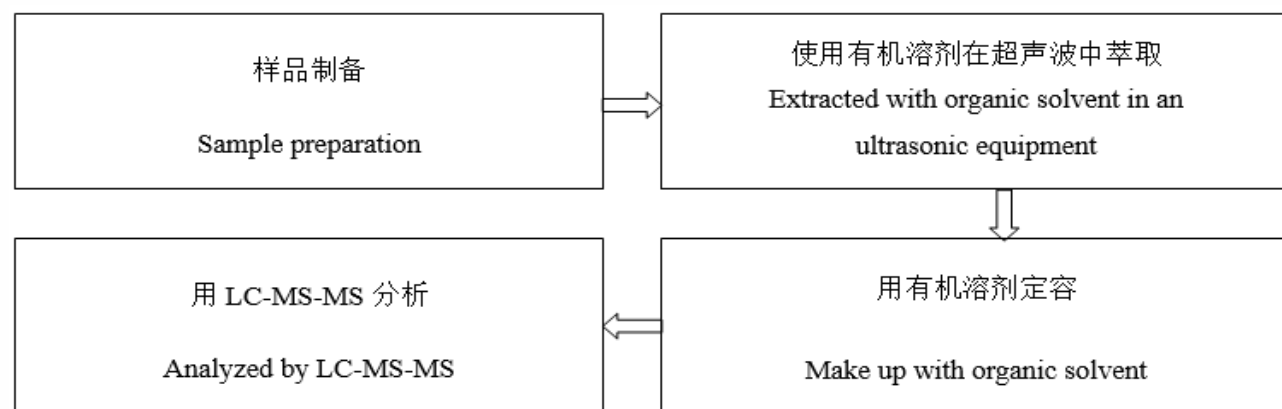
7. 氟(F), 氯(Cl), 溴(Br), 碘(I) Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)



8. 六溴环十二烷(HBCDD) Hexabromocyclododecane (HBCDD)



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



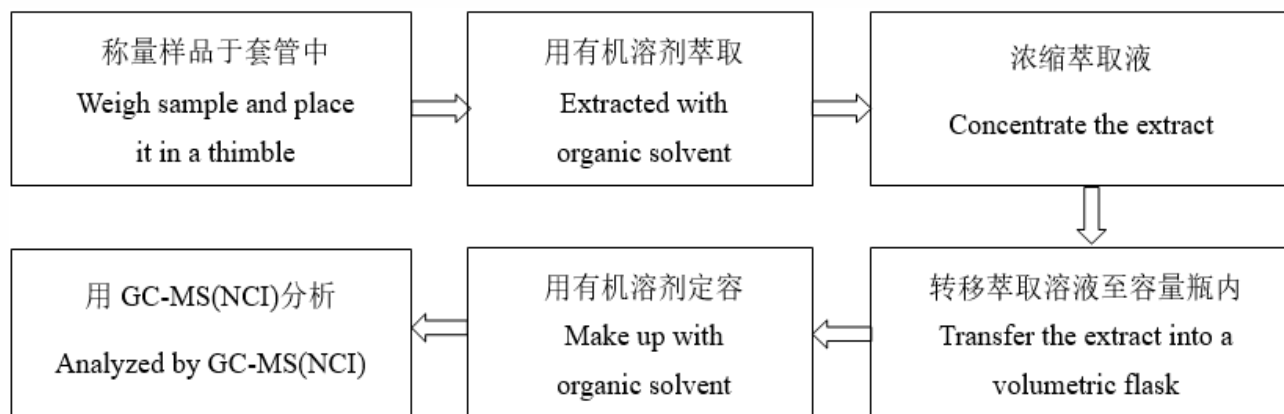
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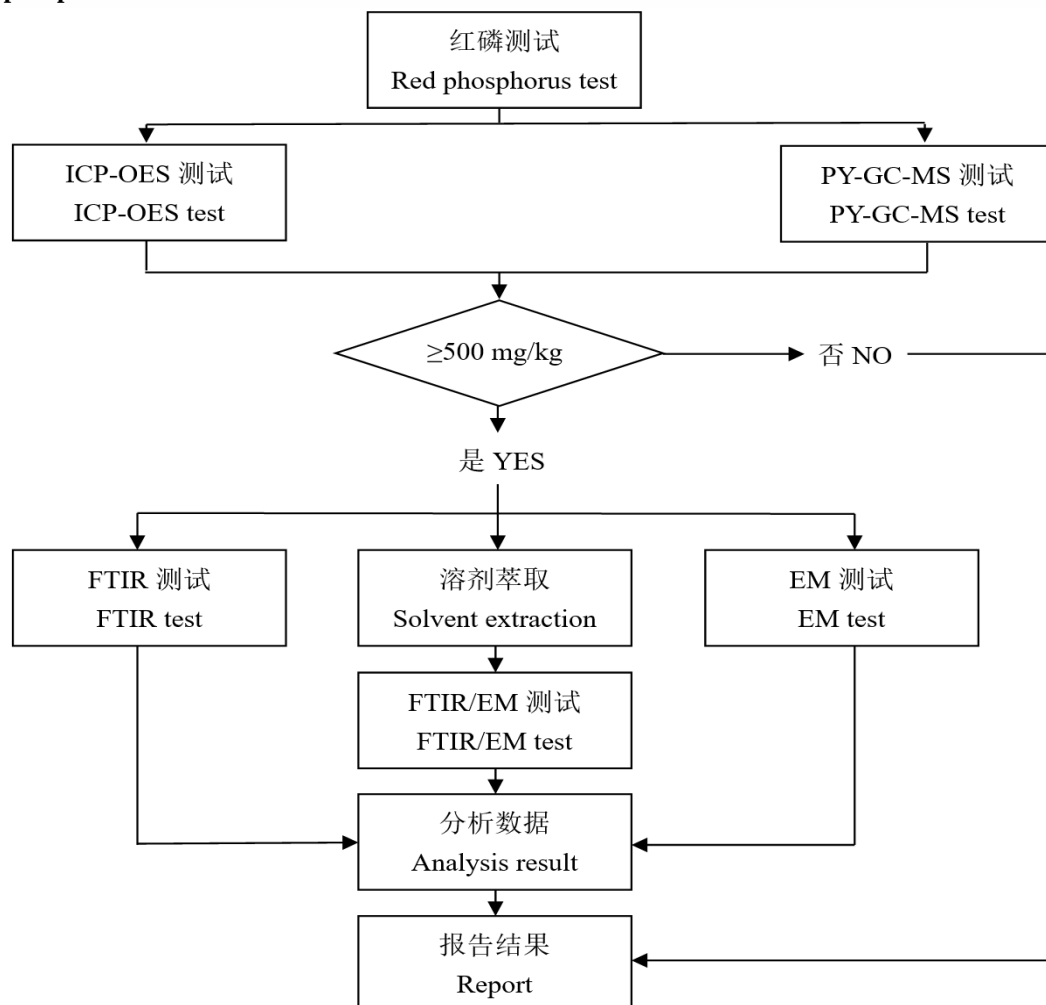
10. 中链氯化石蜡(MCCPs)

Middle Chain Chlorinated Paraffins (MCCPs)



11. 红磷

Red phosphorus

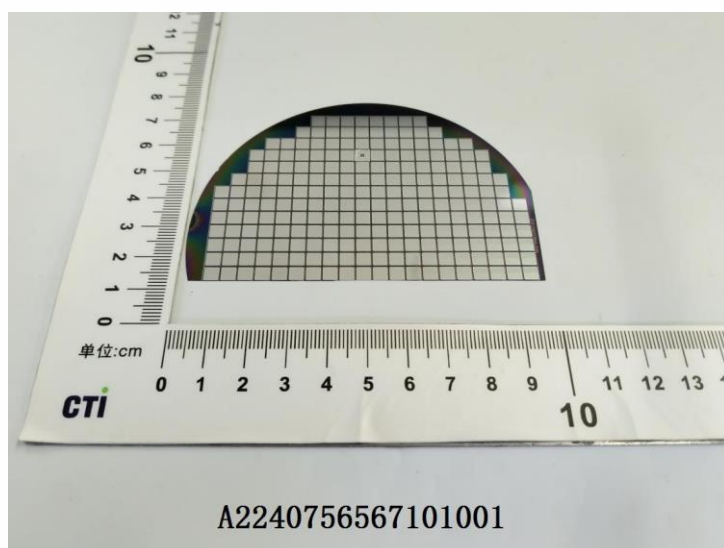


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样品图片 Photo(s) of the sample(s)



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;
Without written approval of CTI, this report can't be reproduced except in full;
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 ***