



检测报告

Test Report

报告编号 A2240382674101002E
Report No. A2240382674101002E

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报告抬头公司名称 九江华秋电路有限公司
Company Name JIUJIANG HUAQIU CIRCUIT CO.,LTD.

shown on Report

地址 江西省九江市九江经济技术开发区城西港区爱民路 2 号
Address NO.2 AIMIN ROAD, CHENGXI PORT AREA, ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE OF JIUJIANG, JIUJIANG CITY, JIANGXI PROVINCE, 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 无铅喷锡 PCB
Sample Name Lead-free HASL PCB
样品接收日期 2024.07.01
Sample Received Date Jul. 1, 2024
样品检测日期 2024.07.01-2024.07.05
Testing Period Jul. 1, 2024 to Jul. 5, 2024

测试内容 Test Conducted:

根据客户的申请要求, 具体要求详见下一页。

As requested by the applicant. For details refer to next page(s).

批准

Approved by

郑晴涛

郑晴涛

技术经理 Technical Manager

日期

Date

2024.07.05

No. R158922282

广东省深圳市宝安区新安街道兴东社区华测检测大楼

华测检测认证集团股份有限公司

Certification Testing International Group Co.,Ltd.

Inspection & Testing Services
CIFI Building, Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

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测试摘要 Executive Summary:

测试要求

TEST REQUEST

- 1) 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
- 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)
Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)),
Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs),
Phthalates (DBP, BBP, DEHP, DIBP)
- 2) 根据客户要求, 对所提交样品中的邻苯二甲酸酯,红磷进行测试。
As specified by client, to test Phthalates,Red phosphorus in the submitted sample(s).
- 3) 美国环保署有毒物质控制法(TSCA)第 6(h)部分关于持久性、生物累积性和毒性
(PBT)化学物质的管控
Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under US EPA Toxic
Substances Control Act (TSCA) Section 6(h)
- 十溴二苯醚
Decabromodiphenyl Ether (DecaBDE)
- 异丙基化磷酸三苯酯
Phenol, Isopropylated Phosphate (PIP (3:1))
- 2,4,6-三叔丁基苯酚
2,4,6-tris(tert-butyl) phenol (2,4,6-TTBP)
- 六氯丁二烯
Hexachlorobutadiene (HCBD)
- 五氯苯硫酚
Pentachlorothiophenol (PCTP)

测试结果

CONCLUSION

符合

PASS

见结果页

See test result(s)

符合

PASS

符合

PASS

符合

PASS

符合

PASS

符合

PASS

*****详细结果, 请见下页*****

***** For further details, please refer to the following page(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
邻苯二甲酸酯 Phthalates	参考 EN 14372:2004(E) Refer to EN 14372:2004(E)	GC-MS
红磷 Red phosphorus*	GB/T 9722-2006	PY-GC-MS

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检测结果 1 Test Result(s) 1

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
	002		
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
	002		
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
	002		
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
	002		
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

检测结果 2 Test Result(s) 2

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	002	
邻苯二甲酸酯 Phthalates		
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	30 mg/kg
邻苯二甲酸丁基苄基酯 Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	30 mg/kg
邻苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	30 mg/kg
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
邻苯二甲酸二乙酯 Diethyl phthalate (DEP) CAS#:84-66-2*	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
	002	
邻苯二甲酸酯 Phthalates		
邻苯二甲酸二丙酯 Dipropyl phthalate (DPrP) CAS#:131-16-8*	N.D.	30 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5*	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
邻苯二甲酸二己酯 Di-n-hexyl phthalate (DNHP/DHEXP) CAS#:84-75-3*	N.D.	30 mg/kg
邻苯二甲酸二苄酯 Dibenzyl phthalate (DBzP) CAS#:523-31-9*	N.D.	30 mg/kg
邻苯二甲酸二苯酯 Diphenyl phthalate (DPhP) CAS#:84-62-8*	N.D.	30 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	002	
红磷 Red phosphorus*	阴性 Negative	500 mg/kg

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备注: 对于检测铅, 镉, 汞之样品已消解完全。

-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 = 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。)

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

-MDL = Method Detection Limit

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

-mg/kg = ppm = parts per million

-1000 mg/kg = 0.1%

-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.)

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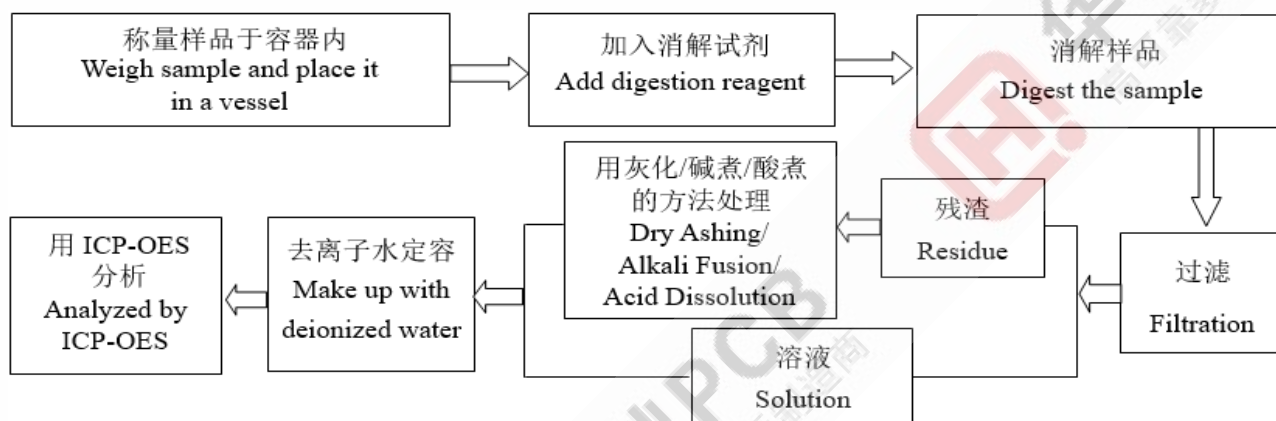
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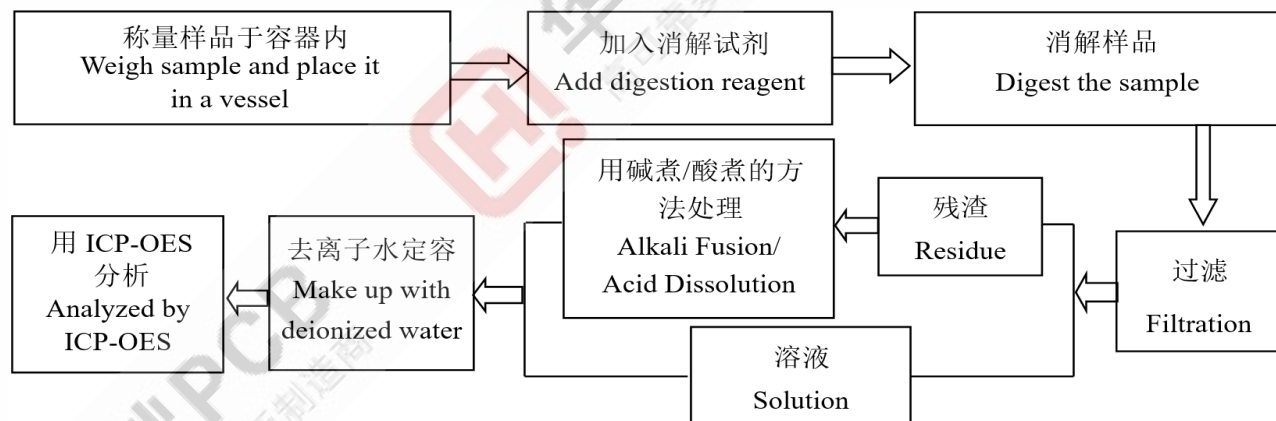
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检测流程 Test Process

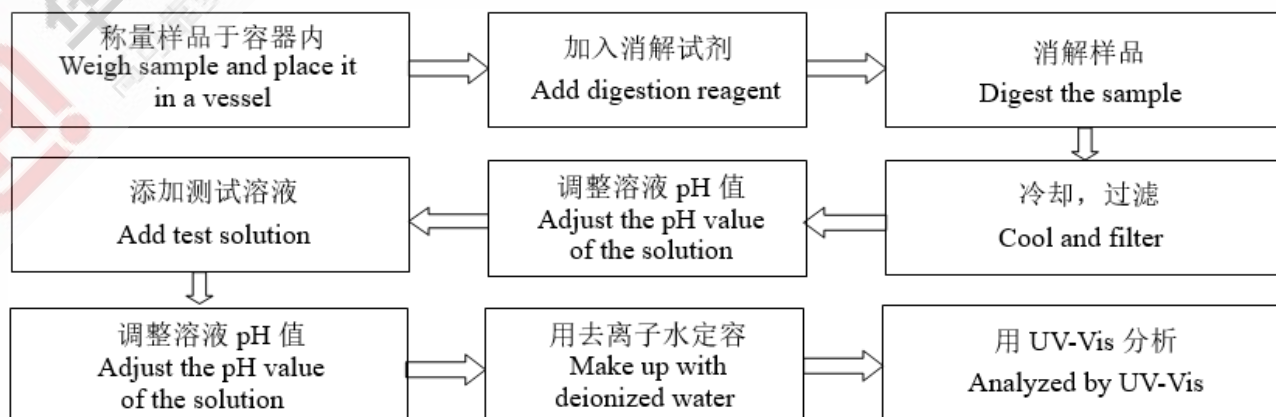
1. 铅 Lead (Pb), 镉 Cadmium (Cd), 铬 Chromium(Cr)



2. 汞 Mercury (Hg)



3. 六价铬 Hexavalent Chromium (Cr(VI))

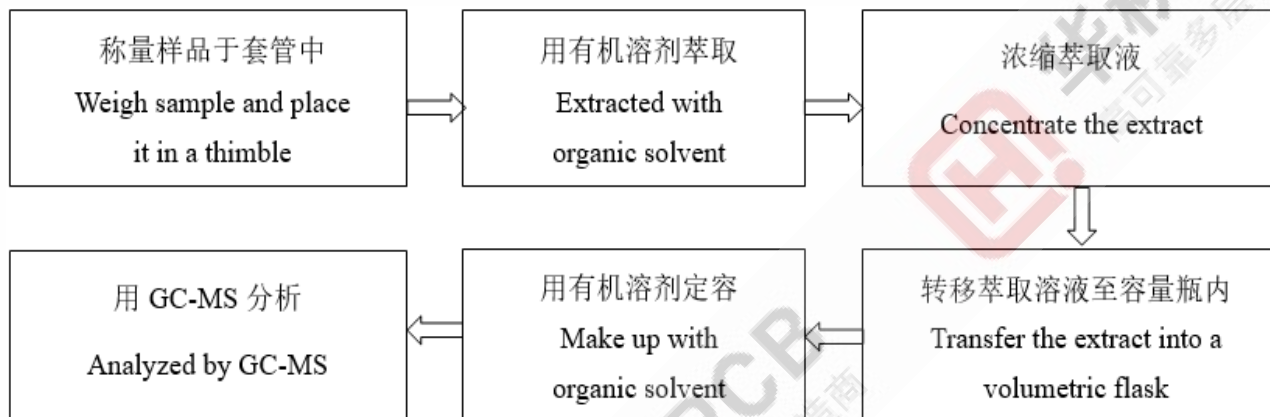


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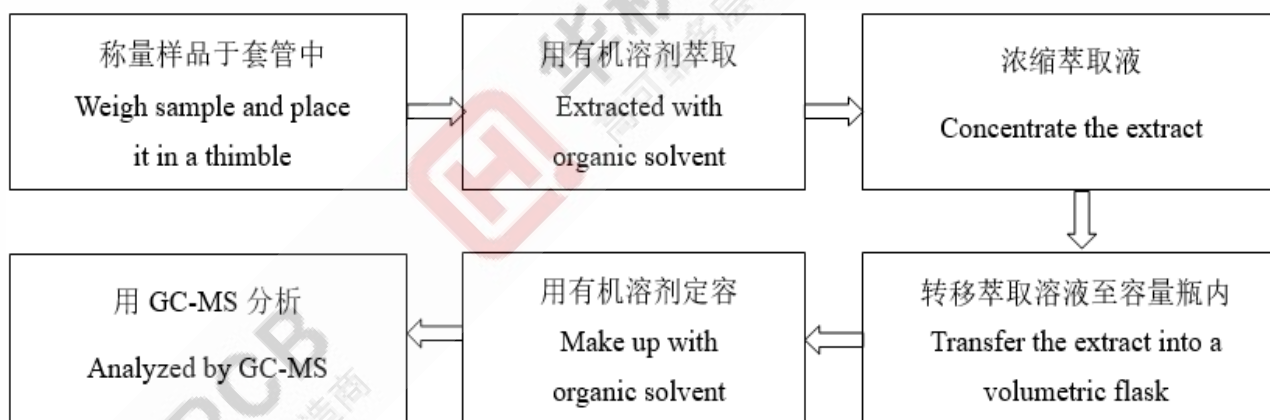
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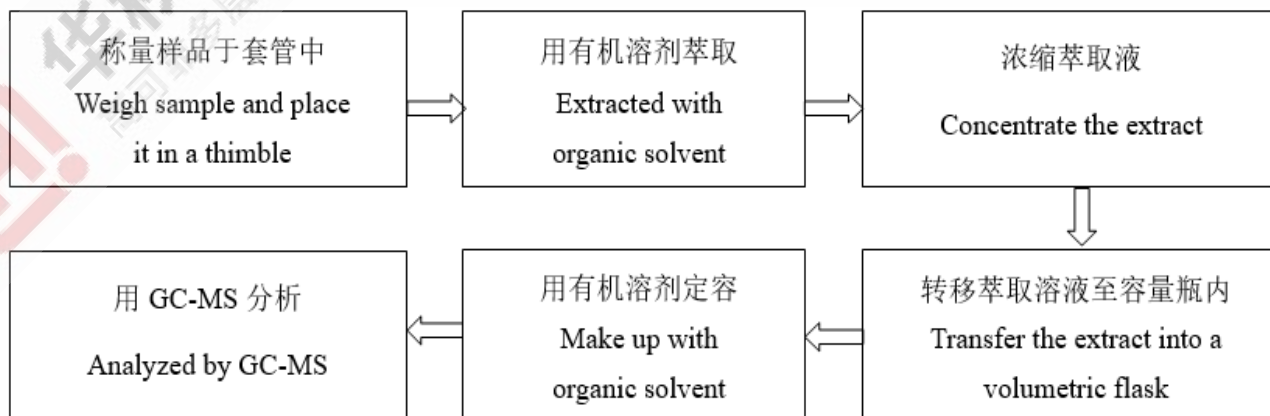
4. 多溴联苯 Polybrominated Biphenyls (PBBs), 多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)



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



6. 邻苯二甲酸酯 Phthalates

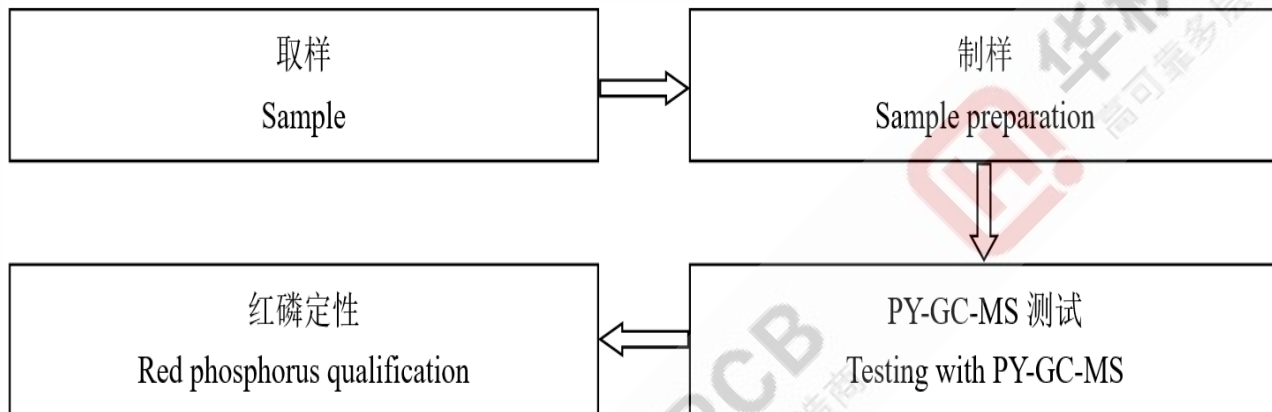


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7. 红磷 Red phosphorus



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检测结果 3 Test Result(s) 3

美国环保署有毒物质控制法(TSCA)第 6(h)部分关于持久性、生物累积性和毒性(PBT)化学物质的管控
Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under US EPA Toxic Substances Control Act
(TSCA) Section 6(h)

▼十溴二苯醚 Decabromodiphenyl Ether (DecaBDE)*

测试方法: 参考 US EPA 3550C:2007 & US EPA 8270E:2018; 测试仪器: GC-MS

Test Method: Refer to US EPA 3550C:2007 & US EPA 8270E:2018; Test Equipment: GC-MS

测试项目 Tested Item(s)	结果 Result (mg/kg)	方法检出限 MDL (mg/kg)	限值 Limit (mg/kg)
	002		
十溴二苯醚 Decabromodiphenyl Ether (DecaBDE)	N.D.	5	N.D.

备注 Remark:

- MDL = 方法检出限 Method Detection Limit
- N.D. = 未检出 Not Detected (小于方法检出限 <MDL)
- mg/kg = ppm = 百万分之一 parts per million

▼异丙基化磷酸三苯酯 Phenol, Isopropylated Phosphate (PIP (3:1))*

测试方法: 参考 US EPA 3550C:2007 & US EPA 8270E:2018; 测试仪器: GC-MS

Test Method: Refer to US EPA 3550C:2007 & US EPA 8270E:2018; Test Equipment: GC-MS

测试项目 Tested Item(s)	结果 Result (mg/kg)	方法检出限 MDL (mg/kg)	限值 Limit (mg/kg)
	002		
异丙基化磷酸三苯酯 Phenol, Isopropylated Phosphate (PIP (3:1))	N.D.	5	N.D.

备注 Remark:

- MDL = 方法检出限 Method Detection Limit
- N.D. = 未检出 Not Detected (小于方法检出限 <MDL)
- mg/kg = ppm = 百万分之一 parts per million

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▼ 2,4,6-三叔丁基苯酚 2,4,6-tris(tert-butyl) phenol (2,4,6-TTBP)*

测试方法: 参考 US EPA 3550C:2007 & US EPA 8270E:2018; 测试仪器: GC-MS

Test Method: Refer to US EPA 3550C:2007 & US EPA 8270E:2018; Test Equipment: GC-MS

测试项目 Tested Item(s)	结果 Result (mg/kg)	方法检出限 MDL (mg/kg)	限值 Limit (mg/kg)
	002		
2,4,6-三叔丁基苯酚 2,4,6-tris(tert-butyl) phenol (2,4,6-TTBP)	N.D.	5	3000

备注 Remark:

- MDL = 方法检出限 Method Detection Limit
- N.D. = 未检出 Not Detected (小于方法检出限 <MDL)
- mg/kg = ppm = 百万分之一 parts per million

▼ 六氯丁二烯 Hexachlorobutadiene (HCBD)*

测试方法: 参考 US EPA 3550C:2007 & US EPA 8270E:2018; 测试仪器: GC-MS

Test Method: Refer to US EPA 3550C:2007 & US EPA 8270E:2018; Test Equipment: GC-MS

测试项目 Tested Item(s)	结果 Result (mg/kg)	方法检出限 MDL (mg/kg)	限值 Limit (mg/kg)
	002		
六氯丁二烯 Hexachlorobutadiene (HCBD)	N.D.	5	N.D.

备注 Remark:

- MDL = 方法检出限 Method Detection Limit
- N.D. = 未检出 Not Detected (小于方法检出限 <MDL)
- mg/kg = ppm = 百万分之一 parts per million

▼ 五氯苯硫酚 Pentachlorothiophenol (PCTP)*

测试方法: 参考 US EPA 3550C:2007 & US EPA 8270E:2018; 测试仪器: GC-MS

Test Method: Refer to US EPA 3550C:2007 & US EPA 8270E:2018; Test Equipment: GC-MS

测试项目 Tested Item(s)	结果 Result (mg/kg)	方法检出限 MDL (mg/kg)	限值 Limit (mg/kg)
	002		
五氯苯硫酚 Pentachlorothiophenol (PCTP)	N.D.	5	10000

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备注 Remark:

- MDL = 方法检出限 Method Detection Limit
- N.D. = 未检出 Not Detected (小于方法检出限 <MDL)
- mg/kg = ppm = 百万分之一 parts per million

样品/部位描述 Sample/Part Description

序号	CTI 样品 ID	描述
No.	CTI Sample ID	Description
1	002	PCB (整体测试) PCB(Tested as a whole)

注释 Note:

- “*”表示该项目/方法不在 CNAS 认可范围内。
“*” indicates the item(s)/method(s) is (are) not in CNAS accreditation scope.
- 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。
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.
- 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。
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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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 ***