



检测报告

Test Report

报告编号 A2230331344101002E
Report No. A2230331344101002E

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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	2023.07.06
Sample Received Date	Jul. 6, 2023
样品检测日期	2023.07.06-2023.07.13
Testing Period	Jul. 6, 2023 to Jul. 13, 2023

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

2023.07.13

No. R158922265

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

Certified Testing International Group Co.,Ltd.

Certified Testing Services
CIT 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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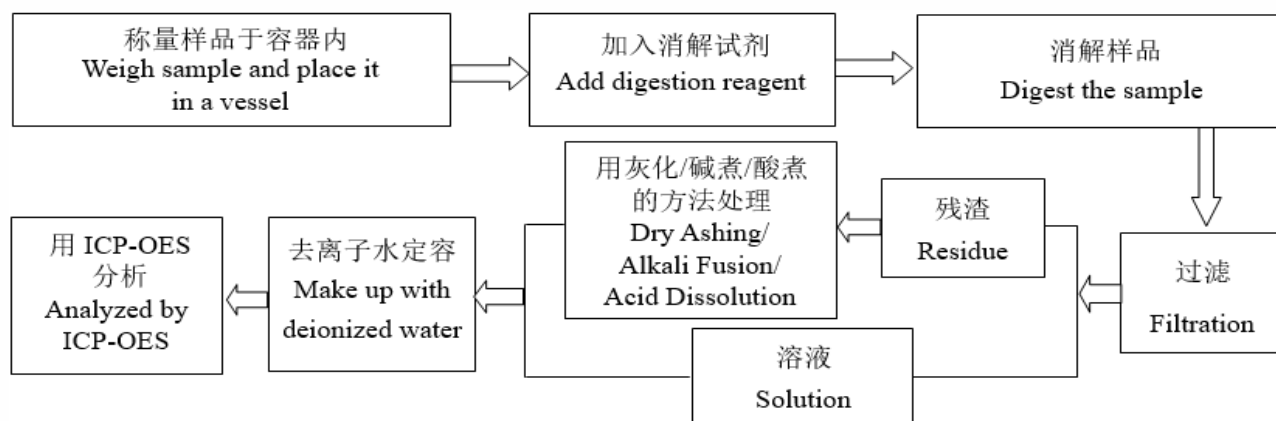
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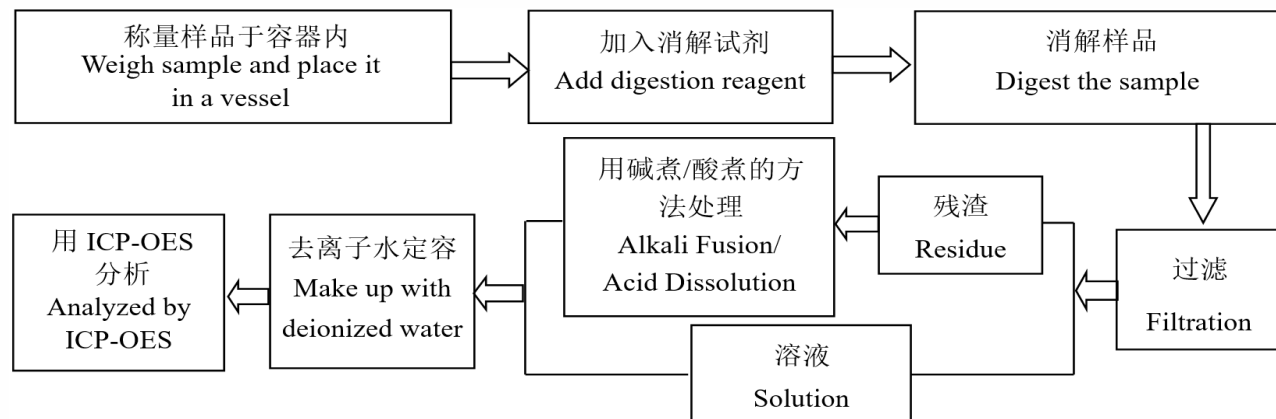
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检测流程 Test Process

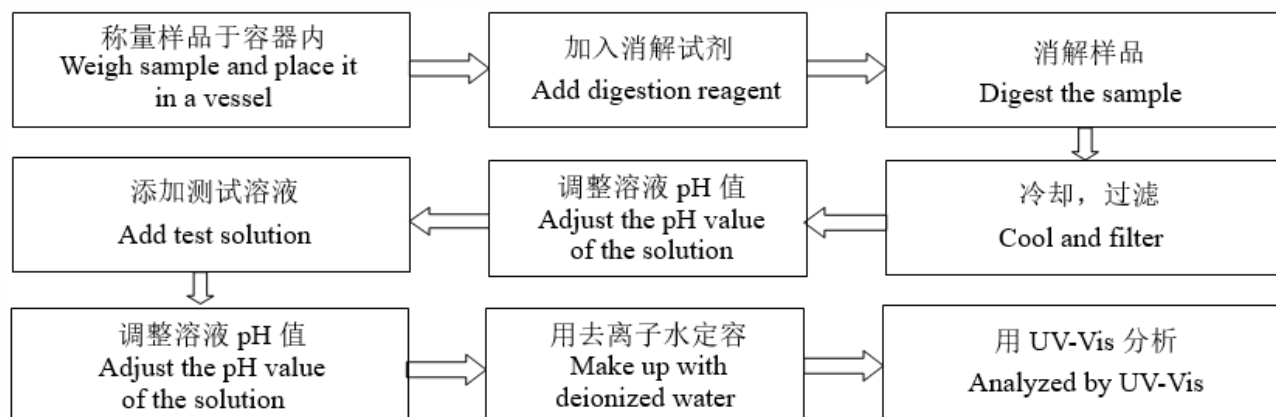
1. 铅 Lead (Pb), 镉 Cadmium (Cd), 铬 Chromium(Cr)



2. 汞 Mercury (Hg)



3. 六价铬 Hexavalent Chromium (Cr(VI))

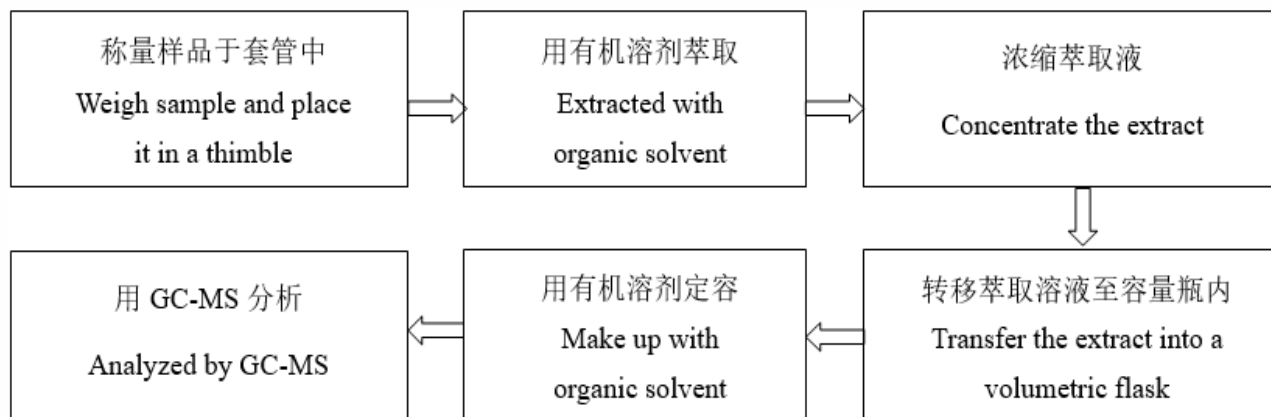


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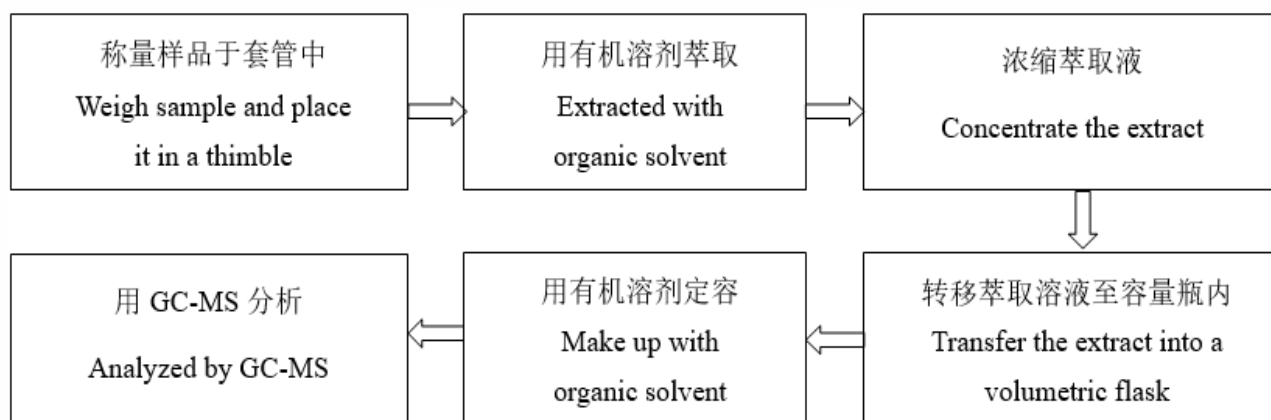
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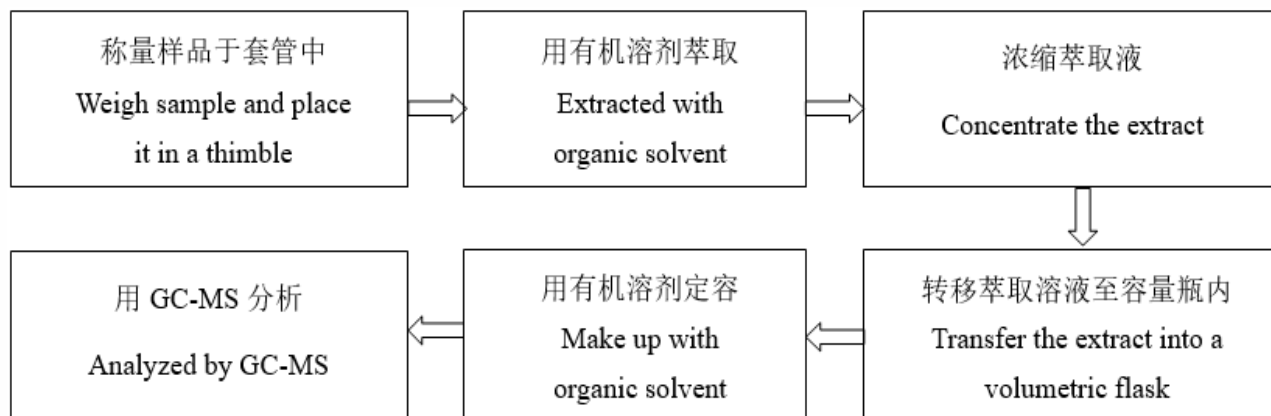
4. 多溴联苯 Polybrominated Biphenyls (PBBs), 多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)



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



6. 邻苯二甲酸酯 Phthalates

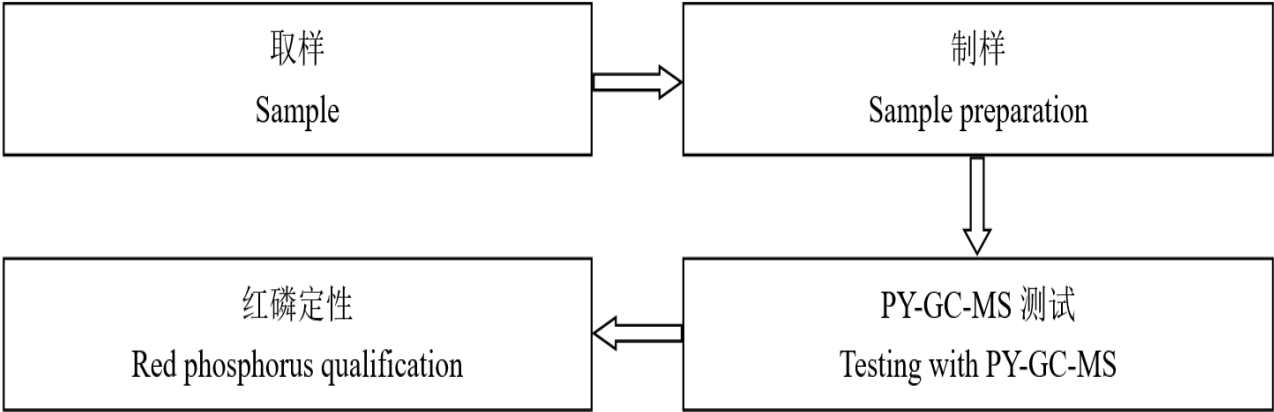


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7. 红磷 Red phosphorus



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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)	报告检出限 Report Limit (mg/kg)	限值 Limit (mg/kg)
	002		
十溴二苯醚 Decabromodiphenyl Ether (DecaBDE)	N.D.	5	N.D.

备注 Remark:

- N.D. = 未检出 Not Detected (小于报告检出限 <Report Limit)
- 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)	报告检出限 Report Limit (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:

- N.D. = 未检出 Not Detected (小于报告检出限 <Report Limit)
- mg/kg = ppm = 百万分之一 parts per million

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Page 12 of 14▼ **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)	报告检出限 Report Limit (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:

- N.D. = 未检出 Not Detected (小于报告检出限 <Report Limit)
- 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)	报告检出限 Report Limit (mg/kg)	限值 Limit (mg/kg)
	002		
六氯丁二烯 Hexachlorobutadiene (HCBd)	N.D.	5	N.D.

备注 Remark:

- N.D. = 未检出 Not Detected (小于报告检出限 <Report Limit)
- 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)	报告检出限 Report Limit (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:

- N.D. = 未检出 Not Detected (小于报告检出限 <Report Limit)
- 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.

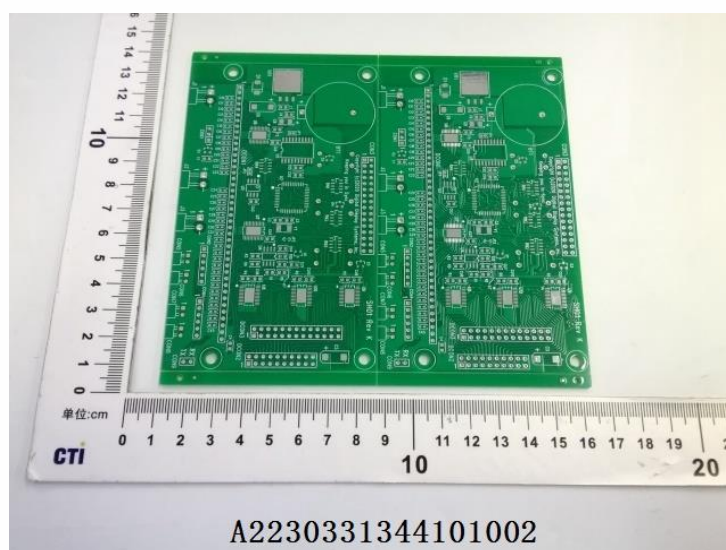
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样品图片

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. 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;

5. 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 ***