

# 检测报告 Test Report

报告编号 ECL01H02363700106E  
Report No. ECL01H02363700106E

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申请单位 江苏捷捷微电子股份有限公司  
Applicant JIANGSU JIEJIE MICROELECTRONIC CO.,LTD  
地 址 江苏省启东科技创业园兴龙路 8 号  
Address 8#,XINGLONG RD,SCIENCE&TECHNOLOGY PARK,QIDONG,JINGSU,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 client

序号 No.	样品名称 Sample Name	样品型号 Part No.	材料名称 Material
1	半导体器件 Semiconductor devices	TO-220A	引线框架 lead frame
2			锡层 solder
3			环氧树脂 epoxy

样品接收日期 2016.04.27

Sample Received Date Apr. 27, 2016

样品检测日期 2016.04.27-2016.05.07

Testing Period Apr. 27, 2016 to May. 7, 2016

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), 聚氯乙烯(PVC)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), Polyvinyl Chloride (PVC) in the submitted sample(s).

检测依据 Test Method 请参见下页 Please refer to following page(s).

检测结果 Test Result(s) 请参见下页 Please refer to following page(s).

主 检  
Tested by

王东

审 核  
Reviewed by

徐静

批 准  
Approved by

苏红伟

日 期  
Date

2016.05.07

苏红伟

高级经理 Senior Laboratory Manager

上海华测品标检测技术有限公司  
Centre Testing International Pinbiao(Shanghai) Co., Ltd.

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上海市浦东新区新金桥路 1996 号  
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结论 Conclusion

测试样品 Tested Sample	依据指令 According to 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	合格 Pass

合格表示检测结果不超过欧盟 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 do not exceed 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 Tested Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅(Pb) Lead (Pb)	IEC 62321-5:2013 Ed.1.0	ICP-OES
	参考 IEC 62321-5:2013 Ed.1.0 Refer to IEC 62321-5:2013 Ed.1.0	
镉(Cd) Cadmium (Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES
	参考 IEC 62321-5:2013 Ed.1.0 Refer to IEC 62321-5:2013 Ed.1.0	
汞(Hg) Mercury (Hg)	IEC 62321-4:2013 Ed.1.0	ICP-OES
	参考 IEC 62321-4:2013 Ed.1.0 Refer to IEC 62321-4:2013 Ed.1.0	
六价铬(Cr(VI)) Hexavalent Chromium (Cr(VI))	IEC 62321:2008 Ed.1 Annex C	UV-Vis
	IEC 62321-7-1:2015	
多溴联苯(PBBs) Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
多溴二苯醚(PBDEs) Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
邻苯二甲酸酯(DBP, BBP, DEHP, DIBP) Phthalates(DBP, BBP, DEHP, DIBP)	参考 EN 14372:2004(E) Refer to EN 14372:2004(E)	GC-MS
聚氯乙烯(PVC) Polyvinyl chloride (PVC)	/	FT-IR

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## 检测结果 Test Result(s)

测试项目 Tested Item	结果 Result			方法检出限	限值 Limit
	1	2	3	MDL	
铅 Lead (Pb)	14 mg/kg	195 mg/kg	N.D.	2mg/kg	1000 mg/kg
镉 Cadmium (Cd)	N.D.	N.D.	N.D.	2mg/kg	100 mg/kg
汞 Mercury (Hg)	N.D.	N.D.	N.D.	2mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	—	—	N.D.	2mg/kg	1000 mg/kg
	N.D.▼	N.D.▼	—	0.10µg/cm <sup>2</sup> (LOQ)	
<b>多溴联苯 Polybrominated Biphenyls(PBBs)</b>					
一溴联苯 Monobromodiphenyl	—	—	N.D.	5mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	—	—	N.D.	5mg/kg	
三溴联苯 Tribromobiphenyl	—	—	N.D.	5mg/kg	
四溴联苯 Tetrabromobiphenyl	—	—	N.D.	5mg/kg	
五溴联苯 Pentabromobiphenyl	—	—	N.D.	5mg/kg	
六溴联苯 Hexabromobiphenyl	—	—	N.D.	5mg/kg	
七溴联苯 Heptabromobiphenyl	—	—	N.D.	5mg/kg	
八溴联苯 Octabromobiphenyl	—	—	N.D.	5mg/kg	
九溴联苯 Nonabromobiphenyl	—	—	N.D.	5mg/kg	
十溴联苯 Decabromobiphenyl	—	—	N.D.	5mg/kg	
<b>多溴二苯醚 Polybrominated Diphenyl Ethers(PBDEs)</b>					
一溴二苯醚 Monobromodiphenyl ether	—	—	N.D.	5mg/kg	1000 mg/kg
二溴二苯醚 Dibromobiphenyl ether	—	—	N.D.	5mg/kg	
三溴二苯醚 Tribromobiphenyl ether	—	—	N.D.	5mg/kg	
四溴二苯醚 Tetrabromobiphenyl ether	—	—	N.D.	5mg/kg	
五溴二苯醚 Pentabromobiphenyl ether	—	—	N.D.	5mg/kg	
六溴二苯醚 Hexabromobiphenyl ether	—	—	N.D.	5mg/kg	
七溴二苯醚 Heptabromobiphenyl ether	—	—	N.D.	5mg/kg	
八溴二苯醚 Octabromobiphenyl ether	—	—	N.D.	5mg/kg	
九溴二苯醚 Nonabromobiphenyl ether	—	—	N.D.	5mg/kg	
十溴二苯醚 Decabromobiphenyl ether	—	—	N.D.	5mg/kg	

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
	3		
<b>邻苯二甲酸酯 Phthalates</b>			
邻苯二甲酸二正丁酯(DBP) Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸丁基苄酯(BBP) Benzylbutyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸二(2-乙基己基)酯(DEHP) 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(DIBP) 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
	3	
聚氯乙烯(PVC) Polyvinyl chloride (PVC)	阴性 Negative	/

## 测试样品/部位描述

## Tested Sample/Part Description

- |         |                 |
|---------|-----------------|
| 1. 金属底材 | Metal base      |
| 2. 银色镀层 | Silvery plating |
| 3. 黑色固体 | Black solid     |



# 检测报告

## Test Report

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备注: 对于检测铅, 镉, 汞之样品已完全溶解。

-N.D. = 未检出 (小于方法检出限或定量限)

-mg/kg = ppm = 百万分之一

-LOQ = 定量限, 六价铬的定量限为  $0.10\mu\text{g}/\text{cm}^2$ 。

-▼六价铬浓度小于  $0.10\mu\text{g}/\text{cm}^2$ , 样品未检出六价铬。

-阴性表示不含有聚氯乙烯(PVC)

根据客户声明, 本报告中的样品和报告 ECL01I023637001E 中的样品为同材质, 本报告中样品的结果引自报告 ECL01I023637001E 中样品的结果。

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

-MDL = Method Detection Limit

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

-mg/kg = ppm = parts per million

-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.

-Negative = Not contained Polyvinyl Chloride (PVC)

According to the client's statement, the material of sample in this report is the same as the sample in report No. ECL01I023637001E, so the test result(s) is presented in reference to that one.

# 检测报告 Test Report

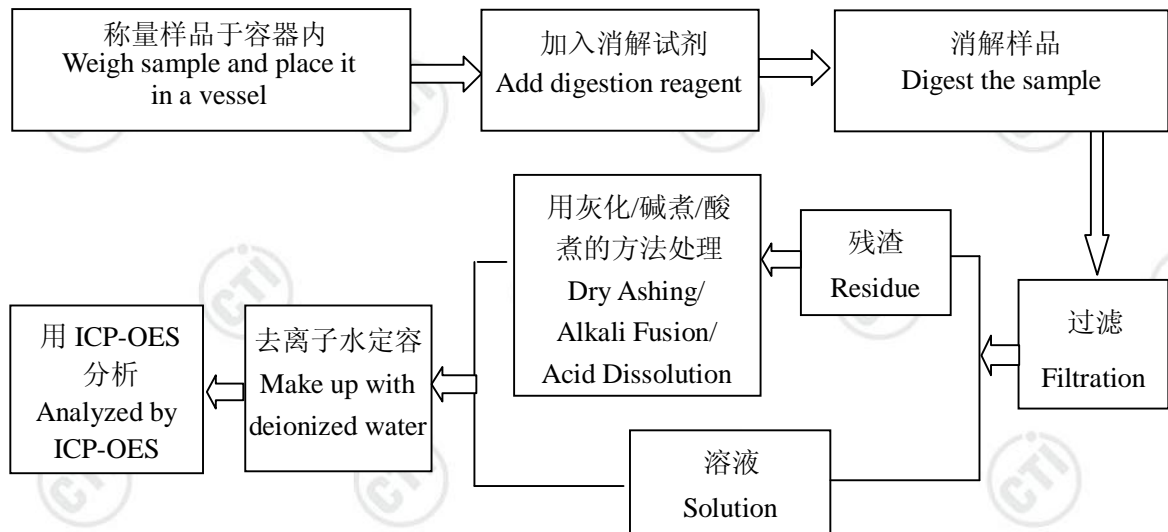
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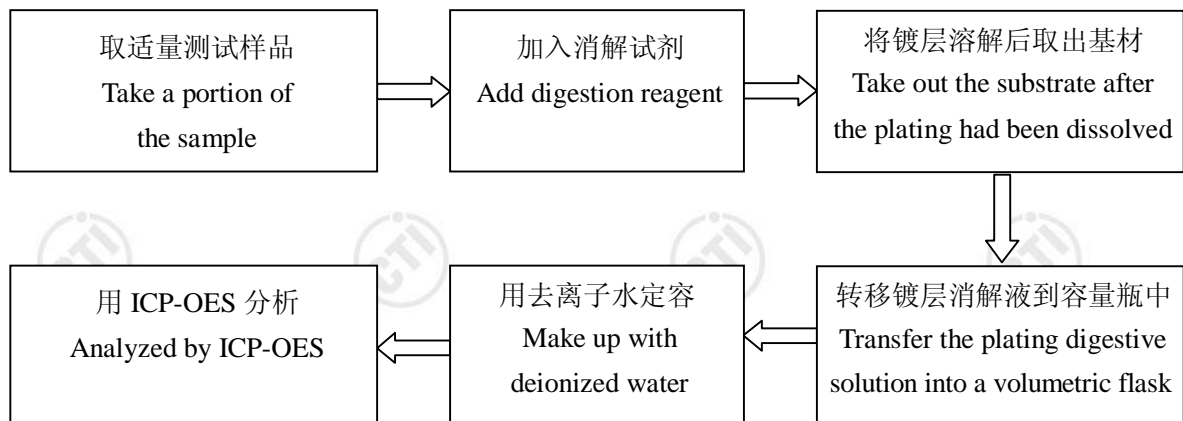
## 检测流程 Test Process

### 1. 铅(Pb)/ 镉(Cd) Lead (Pb)/ Cadmium (Cd)

#### (1) IEC 62321-5:2013 Ed.1.0



#### (2) 参考 Refer to IEC 62321-5:2013 Ed.1.0



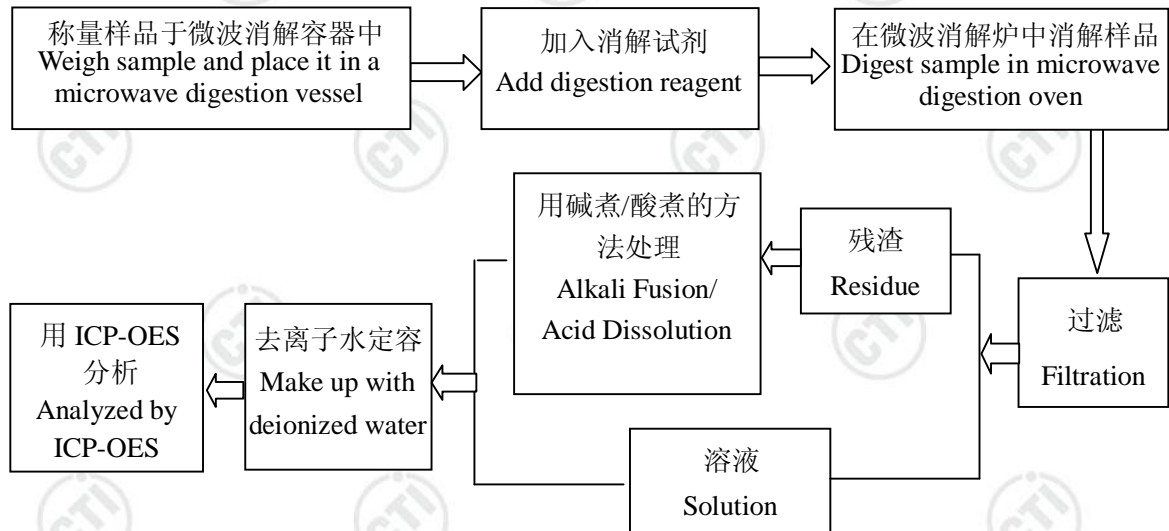
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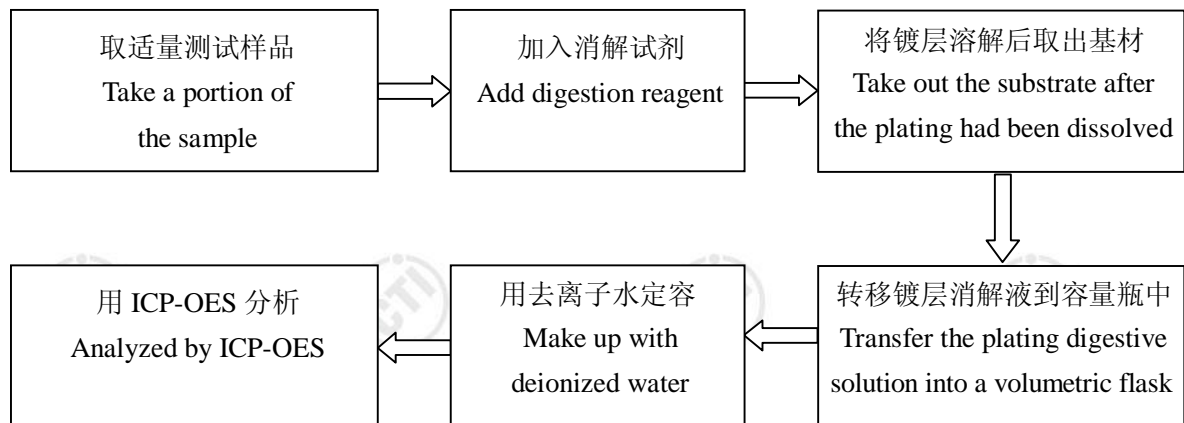
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## 2. 汞(Hg) Mercury (Hg)

### (1) IEC 62321-4:2013 Ed.1.0



### (2) 参考 Refer to IEC 62321-4:2013 Ed.1.0





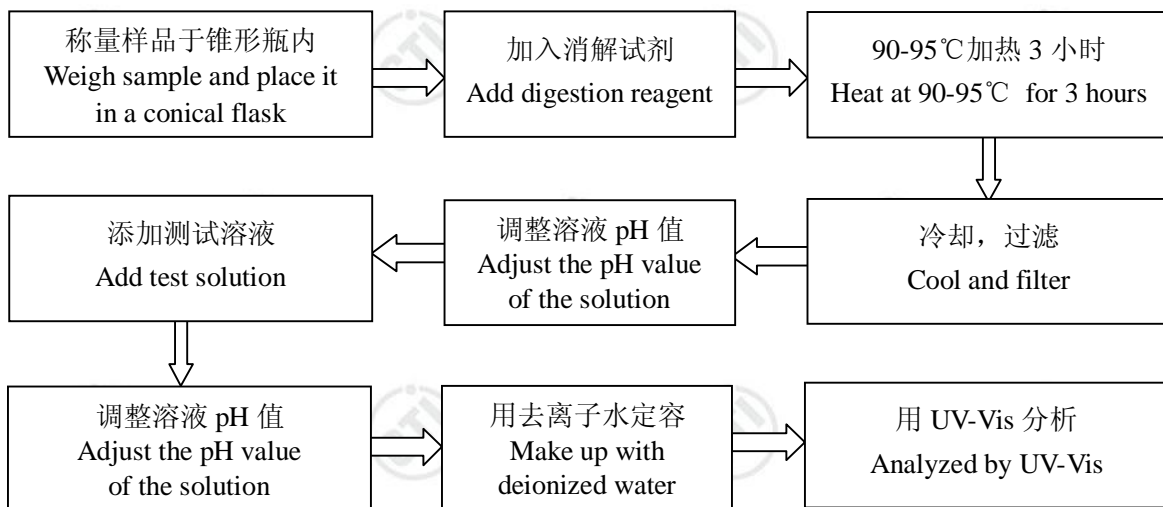
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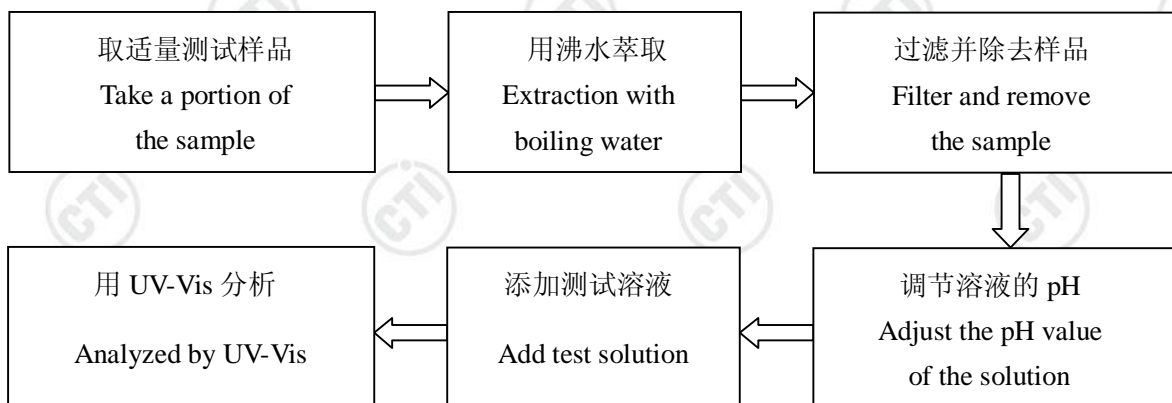
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### 3. 六价铬(Cr(VI)) Hexavalent Chromium (Cr(VI))

#### (1) IEC 62321:2008 Ed.1 Annex C



#### (2) IEC 62321-7-1:2015



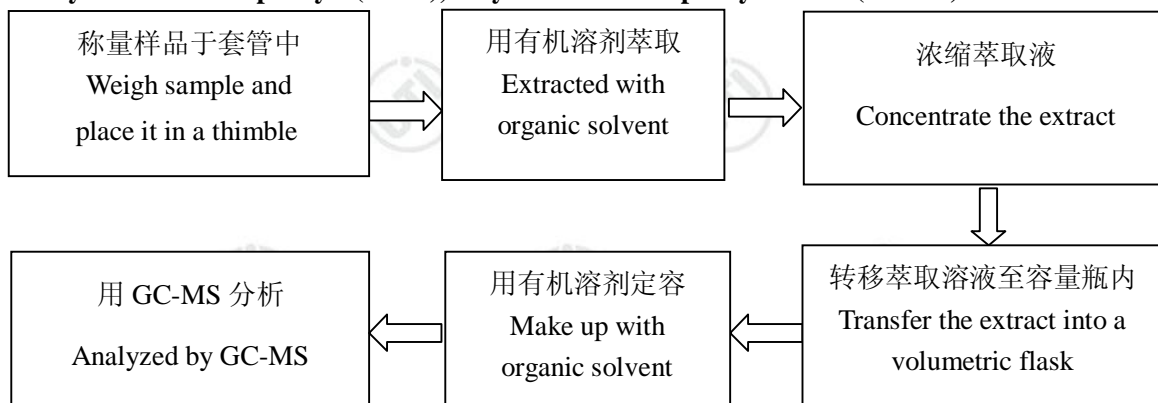
# 检测报告 Test Report

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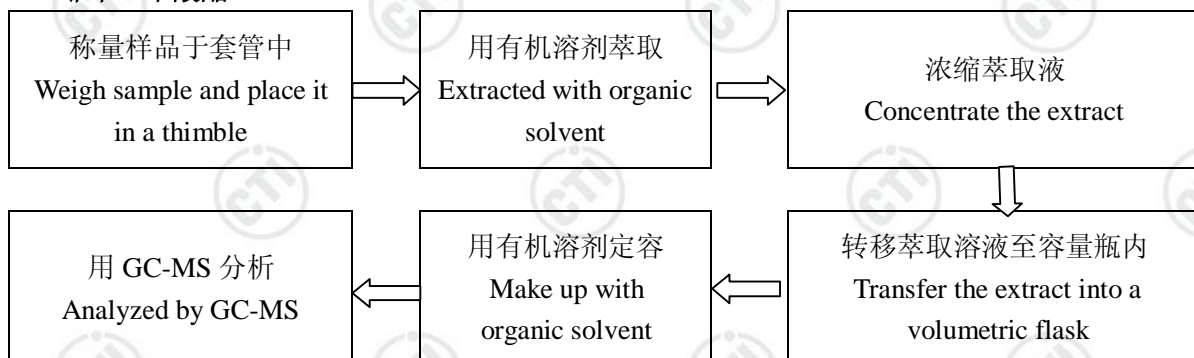
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## 4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)

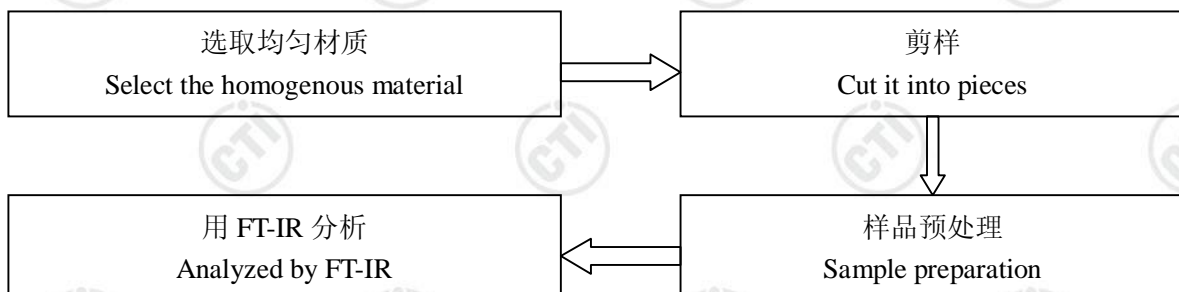
### Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)



## 5. 邻苯二甲酸酯 Phthalates



## 6. 聚氯乙烯(PVC)Polyvinyl chloride (PVC)



# 检测报告

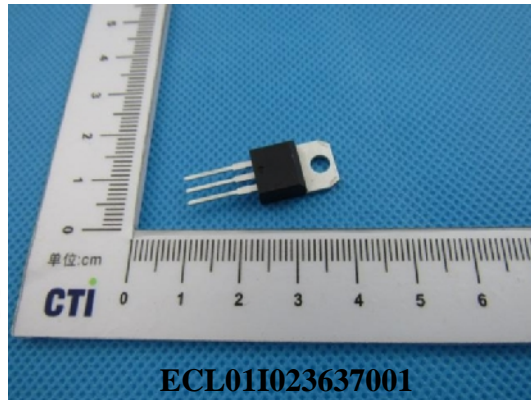
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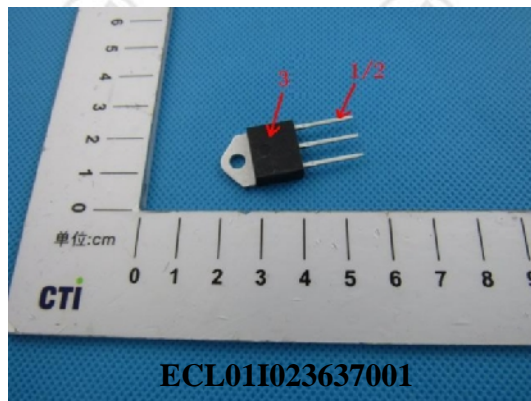
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### 样品图片

#### Photo(s) of the sample(s)



成品 Final Product



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\*\*\* 报告结束 \*\*\*

\*\*\*End of report \*\*\*

检测报告无批准人签字及“报告专用章”无效，本报告检测结果仅对受测样品负责。未经 CTI 书面同意，不得部分复制本报告。

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