

# 检测报告

# Test Report



报告编号 A2180254728101E  
Report No. A2180254728101E

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**申请单位** 惠州市興利業精密電子廠有限公司[敬業電子(惠州)有限公司]  
**Applicant** BENNIC AND COMPANY [JINGYE ELECTRONICS (HUIZHOU) CO., LTD. ]  
**地 址** 廣東省惠州市惠城區惠風西四路 82 號(平南工業園 50 號小區)  
**Address** 82, HUI FENG XI SI ROAD,HUIZHOU, GUANG DONG PROVIENCE

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.	成品名称 Final Product Name	样品名称 Sample Name(s)
001	水泥電阻 CEMENT POWER RESISTORS	瓷殼 Porcelain case
002		瓷棒 Porcelain rods
003		石英沙填充料 Material quartz sand fills
004		引線型鐵帽 Pin-type iron cap
005		插片型鐵帽 Insert type money cap
006		電阻絲 Resistance wire
007		紅色油墨 Red ink
008		黑色油墨 Black ink

样品接收日期 2018.12.21  
Sample Received Date Dec. 21, 2018  
样品检测日期 2018.12.21-2018.12.27  
Testing Period Dec. 21, 2018 to Dec. 27, 2018  
检测要求/检测依据/检测结果 请参见下页。

**Test Requested /Test Method/Test Result(s)** Please refer to the following page(s).

主 检 张小琴 审 核 肖佳  
Tested by \_\_\_\_\_ Reviewed by \_\_\_\_\_

批准 郑晴涛 日 期 2018.12.27  
Approved by \_\_\_\_\_ Date \_\_\_\_\_



郑晴涛  
技术经理 Technical Manager

No. R187212043

华测检测认证集团股份有限公司 深圳市宝安区新安街道留仙三路 4 号华测检测大楼  
Centre Testing International Group Co.,Ltd. CTI Building, No.4, Liuxian 3rd road, Xin'an Street, Bao'an District, Shenzhen, P.R.China

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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

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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)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) in the submitted sample(s).

### 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
	IEC 62321-7-1:2015	UV-Vis
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

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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	002	003		
铅 Lead (Pb)	N.D.	30 mg/kg	N.D.	2 mg/kg	1000 mg/kg
镉 Cadmium (Cd)	N.D.	N.D.	N.D.	2 mg/kg	100 mg/kg
汞 Mercury (Hg)	N.D.	N.D.	N.D.	2 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	N.D.	N.D.	N.D.	8 mg/kg	1000 mg/kg
	--	--	--	0.10 µg/cm <sup>2</sup> (LOQ)	1000 mg/kg

测试项目 Tested Item(s)	结果 Result			方法检出限 MDL	限值 Limit
	004	005	006		
铅 Lead (Pb)	N.D.	N.D.	N.D.	2 mg/kg	1000 mg/kg
镉 Cadmium (Cd)	N.D.	N.D.	N.D.	2 mg/kg	100 mg/kg
汞 Mercury (Hg)	N.D.	N.D.	N.D.	2 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	--	--	--	8 mg/kg	1000 mg/kg
	N.D.▼	N.D.▼	N.D.▼	0.10 µg/cm <sup>2</sup> (LOQ)	1000 mg/kg

测试项目 Tested Item(s)	结果 Result		方法检出限 MDL	限值 Limit
	007	008		
铅 Lead (Pb)	N.D.	N.D.	2 mg/kg	1000 mg/kg
镉 Cadmium (Cd)	N.D.	N.D.	2 mg/kg	100 mg/kg
汞 Mercury (Hg)	N.D.	N.D.	2 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	N.D.	N.D.	8 mg/kg	1000 mg/kg
	--	--	0.10 µg/cm <sup>2</sup> (LOQ)	1000 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
	001	002	003		
<b>多溴联苯 Polybrominated Biphenyls(PBBs)</b>					
一溴联苯 Monobromobiphenyl	N.D.	N.D.	N.D.	5 mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	N.D.	N.D.	5 mg/kg	
三溴联苯 Tribromobiphenyl	N.D.	N.D.	N.D.	5 mg/kg	
四溴联苯 Tetrabromobiphenyl	N.D.	N.D.	N.D.	5 mg/kg	
五溴联苯 Pentabromobiphenyl	N.D.	N.D.	N.D.	5 mg/kg	
六溴联苯 Hexabromobiphenyl	N.D.	N.D.	N.D.	5 mg/kg	
七溴联苯 Heptabromobiphenyl	N.D.	N.D.	N.D.	5 mg/kg	
八溴联苯 Octabromobiphenyl	N.D.	N.D.	N.D.	5 mg/kg	
九溴联苯 Nonabromobiphenyl	N.D.	N.D.	N.D.	5 mg/kg	
十溴联苯 Decabromobiphenyl	N.D.	N.D.	N.D.	5 mg/kg	

测试项目 Tested Item(s)	结果 Result		方法检出限 MDL	限值 Limit
	007	008		
<b>多溴联苯 Polybrominated Biphenyls(PBBs)</b>				
一溴联苯 Monobromobiphenyl	N.D.	N.D.	5 mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	N.D.	5 mg/kg	
三溴联苯 Tribromobiphenyl	N.D.	N.D.	5 mg/kg	
四溴联苯 Tetrabromobiphenyl	N.D.	N.D.	5 mg/kg	
五溴联苯 Pentabromobiphenyl	N.D.	N.D.	5 mg/kg	
六溴联苯 Hexabromobiphenyl	N.D.	N.D.	5 mg/kg	
七溴联苯 Heptabromobiphenyl	N.D.	N.D.	5 mg/kg	
八溴联苯 Octabromobiphenyl	N.D.	N.D.	5 mg/kg	
九溴联苯 Nonabromobiphenyl	N.D.	N.D.	5 mg/kg	
十溴联苯 Decabromobiphenyl	N.D.	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
	001	002	003		
<b>多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)</b>					
一溴二苯醚 Monobromodiphenyl ether	N.D.	N.D.	N.D.	5 mg/kg	1000 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	N.D.	N.D.	5 mg/kg	
三溴二苯醚 Tribromodiphenyl ether	N.D.	N.D.	N.D.	5 mg/kg	
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	N.D.	N.D.	5 mg/kg	
五溴二苯醚 Pentabromodiphenyl ether	N.D.	N.D.	N.D.	5 mg/kg	
六溴二苯醚 Hexabromodiphenyl ether	N.D.	N.D.	N.D.	5 mg/kg	
七溴二苯醚 Heptabromodiphenyl ether	N.D.	N.D.	N.D.	5 mg/kg	
八溴二苯醚 Octabromodiphenyl ether	N.D.	N.D.	N.D.	5 mg/kg	
九溴二苯醚 Nonabromodiphenyl ether	N.D.	N.D.	N.D.	5 mg/kg	
十溴二苯醚 Decabromodiphenyl ether	N.D.	N.D.	N.D.	5 mg/kg	

测试项目 Tested Item(s)	结果 Result		方法检出限 MDL	限值 Limit
	007	008		
<b>多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)</b>				
一溴二苯醚 Monobromodiphenyl ether	N.D.	N.D.	5 mg/kg	1000 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	N.D.	5 mg/kg	
三溴二苯醚 Tribromodiphenyl ether	N.D.	N.D.	5 mg/kg	
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	N.D.	5 mg/kg	
五溴二苯醚 Pentabromodiphenyl ether	N.D.	N.D.	5 mg/kg	
六溴二苯醚 Hexabromodiphenyl ether	N.D.	N.D.	5 mg/kg	
七溴二苯醚 Heptabromodiphenyl ether	N.D.	N.D.	5 mg/kg	
八溴二苯醚 Octabromodiphenyl ether	N.D.	N.D.	5 mg/kg	
九溴二苯醚 Nonabromodiphenyl ether	N.D.	N.D.	5 mg/kg	
十溴二苯醚 Decabromodiphenyl ether	N.D.	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
	001	002	003		
<b>邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)</b>					
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	N.D.	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.	N.D.	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.	N.D.	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.	N.D.	N.D.	50 mg/kg	1000 mg/kg

测试项目 Tested Item(s)	结果 Result		方法检出限 MDL	限值 Limit
	007	008		
<b>邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)</b>				
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	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.	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.	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.	N.D.	50 mg/kg	1000 mg/kg

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## 测试样品/部位描述 Tested Sample/Part Description

- 001 白色陶瓷 White ceramic
- 002 灰白色陶瓷 Gray-white ceramic
- 003 白色粉末 White powder
- 004 带有银色镀层的金属 Metal with silvery plating
- 005 带有银白色镀层的金属 Metal with silver-white plating
- 006 银色金属线 Silvery metal wire
- 007 红色油墨 Red ink
- 008 黑色油墨 Black ink

**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  
-1000 mg/kg = 0.1%  
-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。

**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  
-1000 mg/kg = 0.1%  
-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.



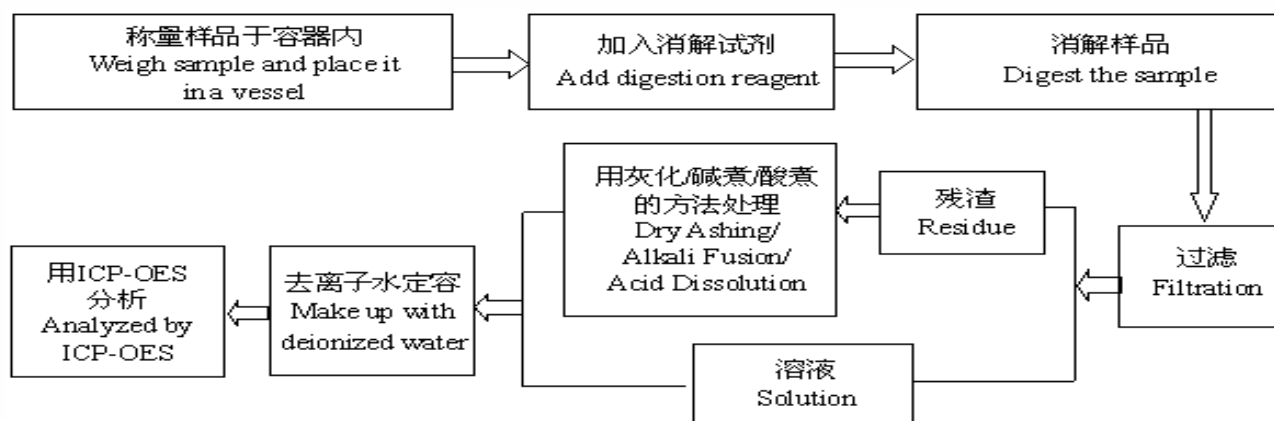
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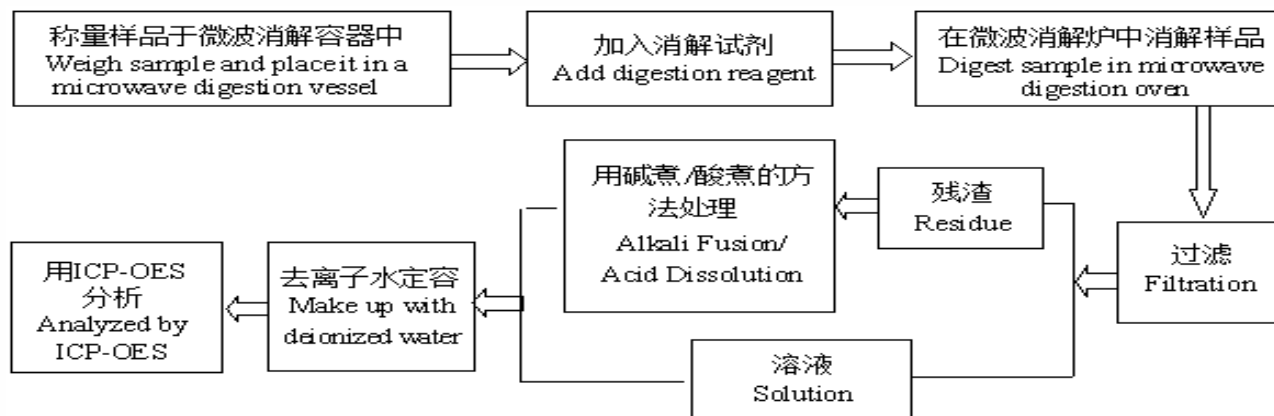
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## 检测流程 Test Process

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



### 2. 汞 Mercury(Hg)



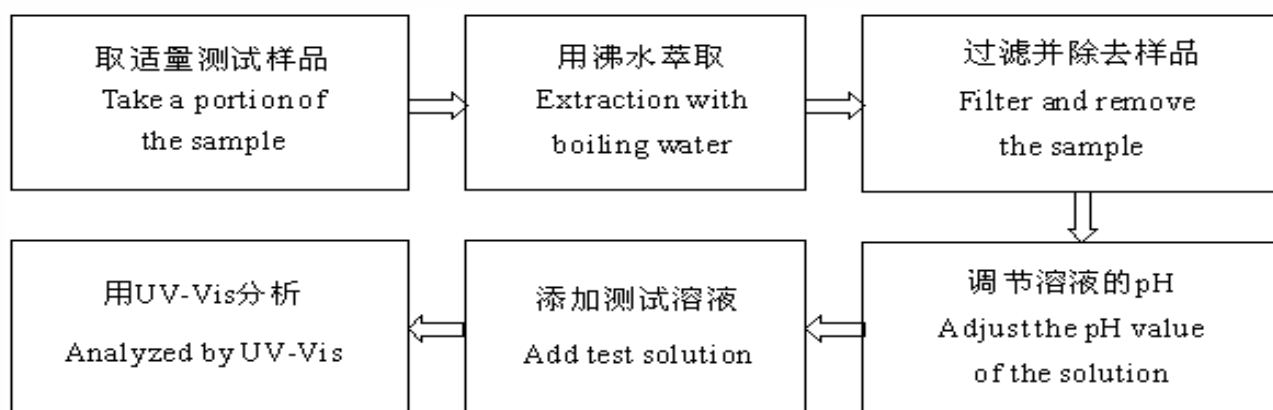
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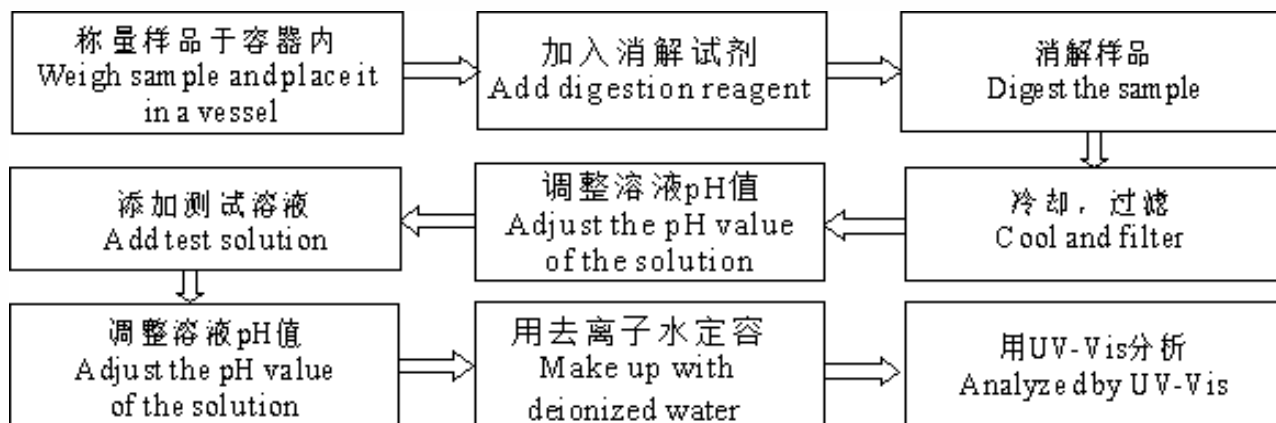
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### 3. 六价铬 Hexavalent Chromium(Cr(VI))

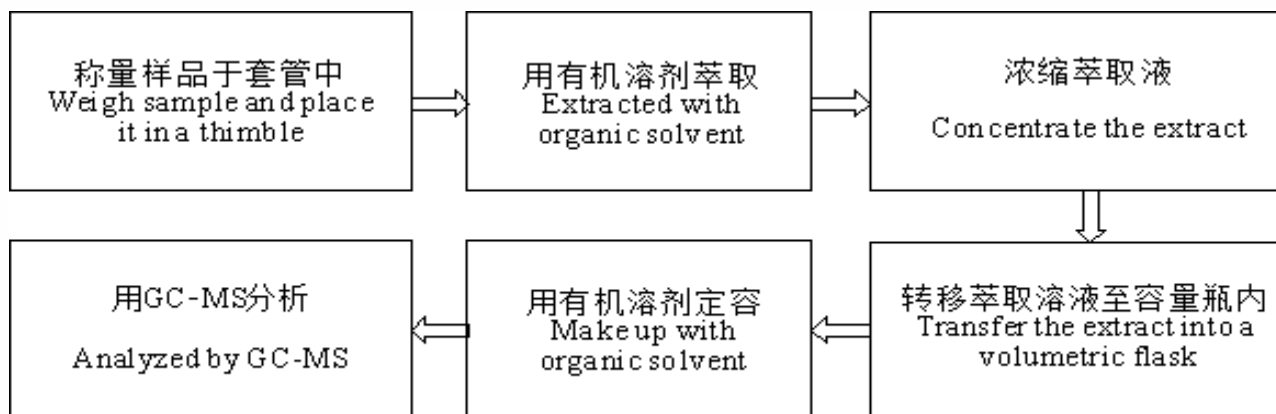
#### (1) IEC 62321-7-1:2015



#### (2) IEC 62321-7-2:2017



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

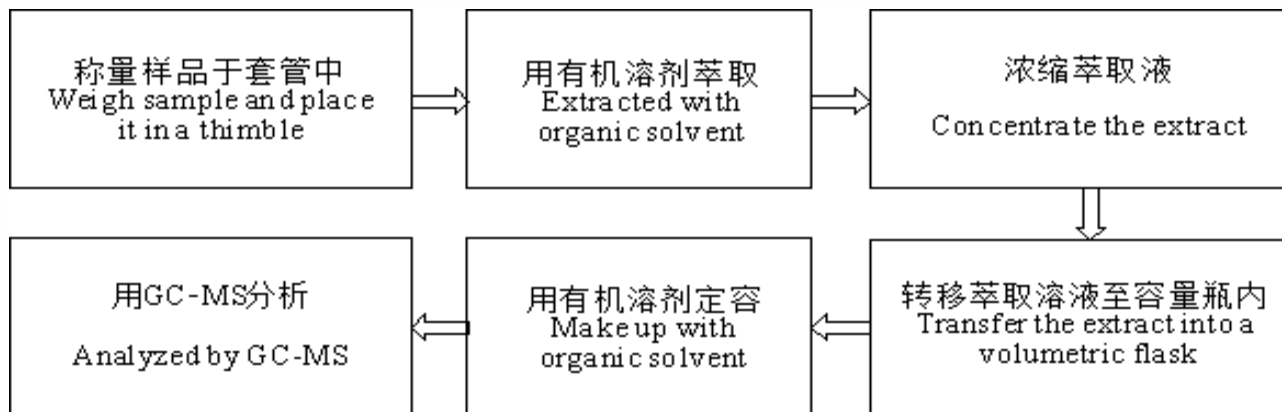


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## 5. 邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)



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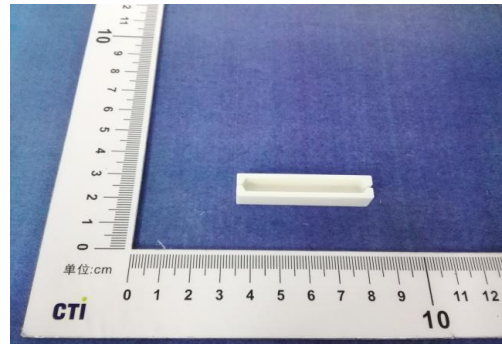
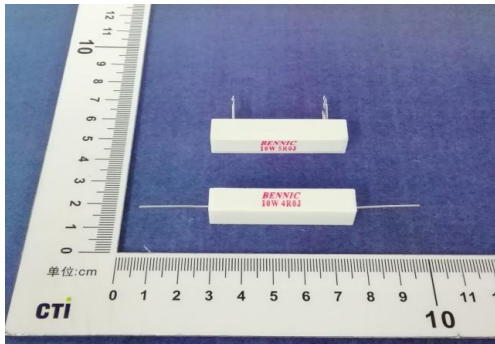
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## 样品图片 Photo(s) of the sample(s)

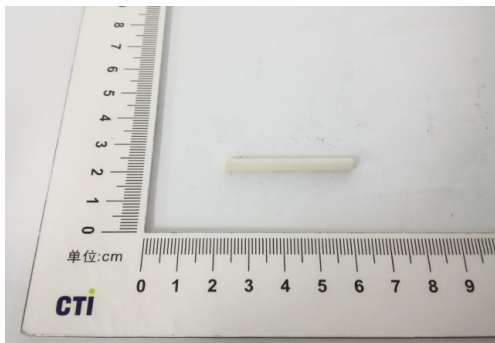
成品 Final Product

001



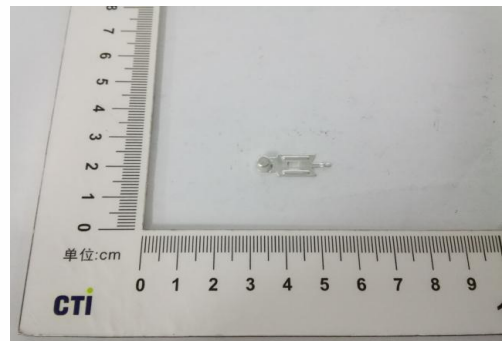
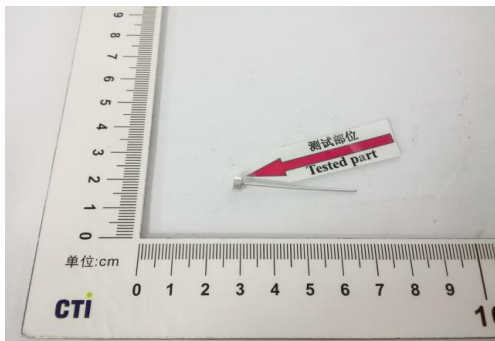
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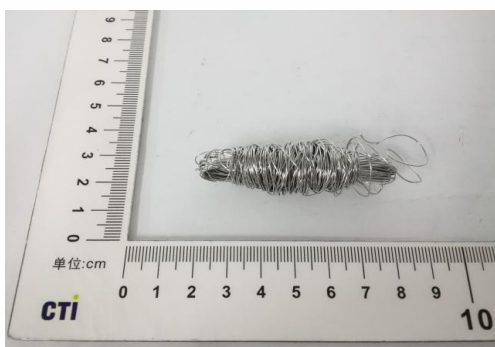
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\*\*\* 报告结束 \*\*\*  
\*\*\* End of Report \*\*\*

## 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 invalidated without approval signature, special seal and the seal on the perforation;
2. 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 sample(s) and sample information was/were provided by the client 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.