



# 检测报告

## Test Report

报告编号 A2250459200101E  
Report No. A2250459200101E

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报告抬头公司名称 青岛三莹电子有限公司  
**Company Name** QINGDAO SAMYOUNG ELECTRONICS CO.,LTD.  
**shown on Report**  
地址 平度市外向型工业加工区长江路 5 号  
**Address** NO.5,CHANGJIANG ROAD,PINGDU CITY,SHANGDONG 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 铝电解电容器  
**Sample Name** AL CAPACITOR  
样品接收日期 2025.07.03  
**Sample Received Date** Jul. 3, 2025  
样品检测日期 2025.07.03-2025.07.10  
**Testing Period** Jul. 3, 2025 to Jul. 10, 2025

**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/检测结果** 请参见下页。  
**Test Method/Test Result(s)** Please refer to the following page(s).



袁辉龙

袁辉龙

授权签字人 Lab Authorized Signatory

日期  
Date

2025.07.14

No. R219921866

宁波市华测检测技术有限公司  
Inspection & Testing Services

Centre Testing International (Ningbo) Co.,Ltd.

宁波高新区菁华路 76 号厂区东首第一、二层

1-2F, Eastern Factory, No.76, Jinghua Road, High-Tech Zone, Ningbo, Zhejiang, 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 62321-7-1:2015	UV-Vis
	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

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### 检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result			报告限 RL	限值 Limit
	1	2	3		
铅 Lead (Pb)	N.D.	N.D.	N.D.	10 mg/kg	1000 mg/kg
镉 Cadmium (Cd)	N.D.	N.D.	N.D.	10 mg/kg	100 mg/kg
汞 Mercury (Hg)	N.D.	N.D.	N.D.	10 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	--	N.D.▼	--	0.10 µg/cm <sup>2</sup> (LOQ)	1000 mg/kg
	N.D.	--	N.D.	20 mg/kg	1000 mg/kg

测试项目 Tested Item(s)	结果 Result			报告限 RL	限值 Limit
	4	5	6		
铅 Lead (Pb)	N.D.	17 mg/kg	28 mg/kg	10 mg/kg	1000 mg/kg
镉 Cadmium (Cd)	N.D.	N.D.	N.D.	10 mg/kg	100 mg/kg
汞 Mercury (Hg)	N.D.	N.D.	N.D.	10 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	--	N.D.▼	N.D.▼	0.10 µg/cm <sup>2</sup> (LOQ)	1000 mg/kg
	N.D.	--	--	20 mg/kg	1000 mg/kg

测试项目 Tested Item(s)	结果 Result			报告限 RL	限值 Limit
	7	8	9		
铅 Lead (Pb)	27 mg/kg	N.D.	N.D.	10 mg/kg	1000 mg/kg
镉 Cadmium (Cd)	N.D.	N.D.	N.D.	10 mg/kg	100 mg/kg
汞 Mercury (Hg)	N.D.	N.D.	N.D.	10 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	--	N.D.▼	N.D.▼	0.10 µg/cm <sup>2</sup> (LOQ)	1000 mg/kg
	N.D.	--	--	20 mg/kg	1000 mg/kg

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测试项目 Tested Item(s)	结果 Result			报告限 RL	限值 Limit
	1	3	4		
<b>多溴联苯 Polybrominated Biphenyls (PBBs)</b>					
一溴联苯 Monobromobiphenyl	N.D.	N.D.	N.D.	100 mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	N.D.	N.D.	100 mg/kg	
三溴联苯 Tribromobiphenyl	N.D.	N.D.	N.D.	100 mg/kg	
四溴联苯 Tetrabromobiphenyl	N.D.	N.D.	N.D.	100 mg/kg	
五溴联苯 Pentabromobiphenyl	N.D.	N.D.	N.D.	100 mg/kg	
六溴联苯 Hexabromobiphenyl	N.D.	N.D.	N.D.	100 mg/kg	
七溴联苯 Heptabromobiphenyl	N.D.	N.D.	N.D.	100 mg/kg	
八溴联苯 Octabromobiphenyl	N.D.	N.D.	N.D.	100 mg/kg	
九溴联苯 Nonabromobiphenyl	N.D.	N.D.	N.D.	100 mg/kg	
十溴联苯 Decabromobiphenyl	N.D.	N.D.	N.D.	100 mg/kg	

测试项目 Tested Item(s)	结果 Result	报告限 RL	限值 Limit
	7		
<b>多溴联苯 Polybrominated Biphenyls (PBBs)</b>			
一溴联苯 Monobromobiphenyl	N.D.	100 mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	100 mg/kg	
三溴联苯 Tribromobiphenyl	N.D.	100 mg/kg	
四溴联苯 Tetrabromobiphenyl	N.D.	100 mg/kg	
五溴联苯 Pentabromobiphenyl	N.D.	100 mg/kg	
六溴联苯 Hexabromobiphenyl	N.D.	100 mg/kg	
七溴联苯 Heptabromobiphenyl	N.D.	100 mg/kg	
八溴联苯 Octabromobiphenyl	N.D.	100 mg/kg	
九溴联苯 Nonabromobiphenyl	N.D.	100 mg/kg	
十溴联苯 Decabromobiphenyl	N.D.	100 mg/kg	

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测试项目 Tested Item(s)	结果 Result			报告限 RL	限值 Limit
	1	3	4		
<b>多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)</b>					
一溴二苯醚 Monobromodiphenyl ether	N.D.	N.D.	N.D.	100 mg/kg	1000 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	N.D.	N.D.	100 mg/kg	
三溴二苯醚 Tribromodiphenyl ether	N.D.	N.D.	N.D.	100 mg/kg	
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	N.D.	N.D.	100 mg/kg	
五溴二苯醚 Pentabromodiphenyl ether	N.D.	N.D.	N.D.	100 mg/kg	
六溴二苯醚 Hexabromodiphenyl ether	N.D.	N.D.	N.D.	100 mg/kg	
七溴二苯醚 Heptabromodiphenyl ether	N.D.	N.D.	N.D.	100 mg/kg	
八溴二苯醚 Octabromodiphenyl ether	N.D.	N.D.	N.D.	100 mg/kg	
九溴二苯醚 Nonabromodiphenyl ether	N.D.	N.D.	N.D.	100 mg/kg	
十溴二苯醚 Decabromodiphenyl ether	N.D.	N.D.	N.D.	100 mg/kg	

测试项目 Tested Item(s)	结果 Result	报告限 RL	限值 Limit
	7		
<b>多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)</b>			
一溴二苯醚 Monobromodiphenyl ether	N.D.	100 mg/kg	1000 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	100 mg/kg	
三溴二苯醚 Tribromodiphenyl ether	N.D.	100 mg/kg	
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	100 mg/kg	
五溴二苯醚 Pentabromodiphenyl ether	N.D.	100 mg/kg	
六溴二苯醚 Hexabromodiphenyl ether	N.D.	100 mg/kg	
七溴二苯醚 Heptabromodiphenyl ether	N.D.	100 mg/kg	
八溴二苯醚 Octabromodiphenyl ether	N.D.	100 mg/kg	
九溴二苯醚 Nonabromodiphenyl ether	N.D.	100 mg/kg	
十溴二苯醚 Decabromodiphenyl ether	N.D.	100 mg/kg	

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测试项目 Tested Item(s)	结果 Result			报告限 RL	限值 Limit
	1	3	4		
<b>邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)</b>					
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	报告限 RL	限值 Limit
	7		
<b>邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)</b>			
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
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	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

**样品/部位描述 Sample/Part Description**

序号 No.	CTI 样品 ID CTI Sample ID	描述 Description
1	1	有银色印字的深棕色塑料 Dark brown plastic with silvery printing
2	2	银色金属 Black plastic
3	3	无色透明胶带 Colorless transparent adhesive tape

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序号 No.	CTI 样品 ID CTI Sample ID	描述 Description
4	4	棕色纸 Brown paper
5	5	银灰色金属 Silvery grey metal
6	6	深灰色金属 Dark grey metal
7	7	黑色橡胶 Black rubber
8	8	银色金属引脚 Silvery metal pin
9	9	银色金属引脚 Silvery metal pin

**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。由于未获知样品的存储条件和生产日期, 样品的六价铬测试结果仅能代表测试时样品含六价铬的状态。

**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. Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

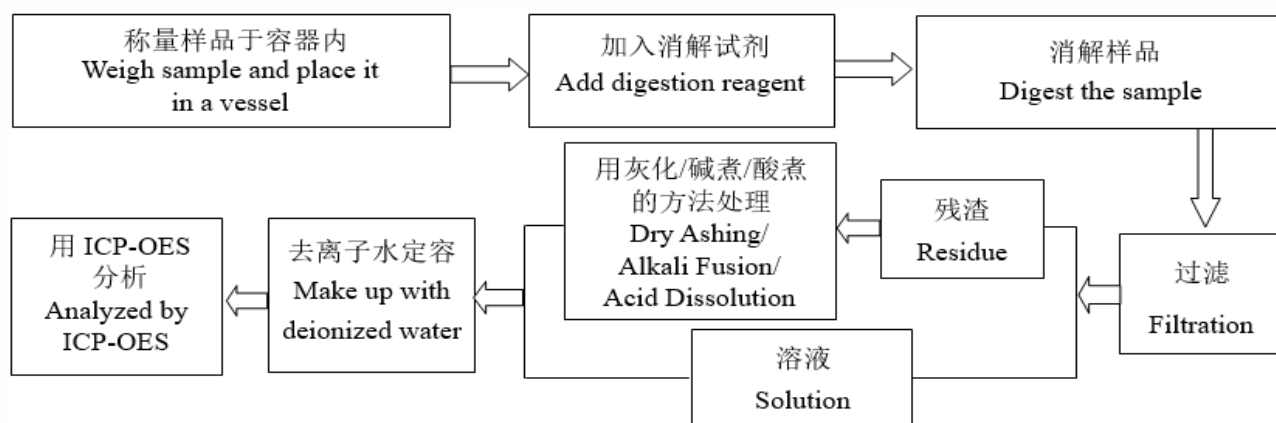
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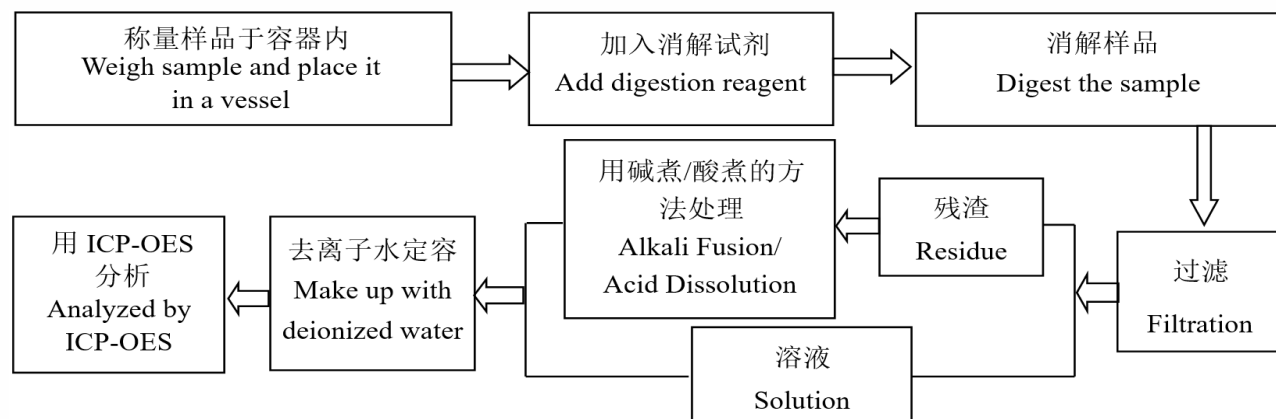
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## 检测流程 Test Process

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

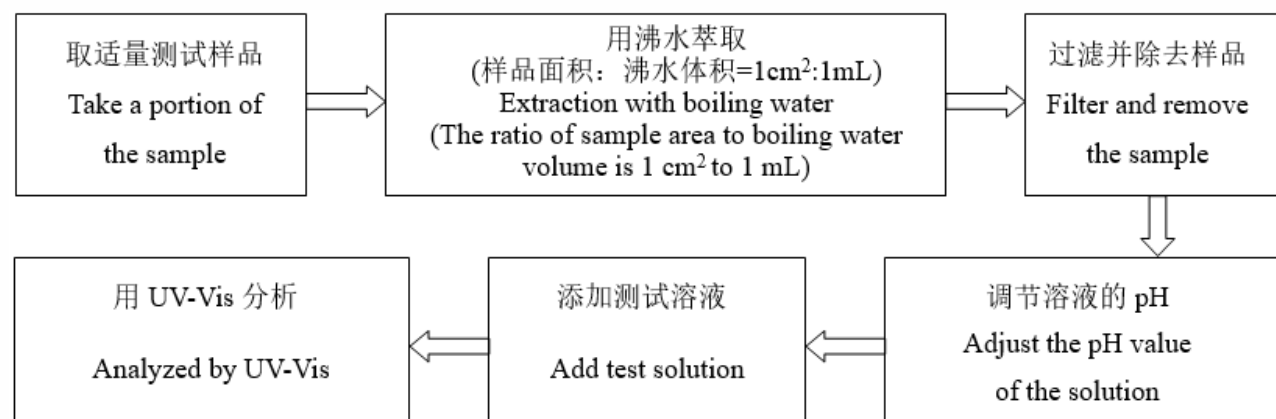


### 2. 汞 Mercury (Hg)



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

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

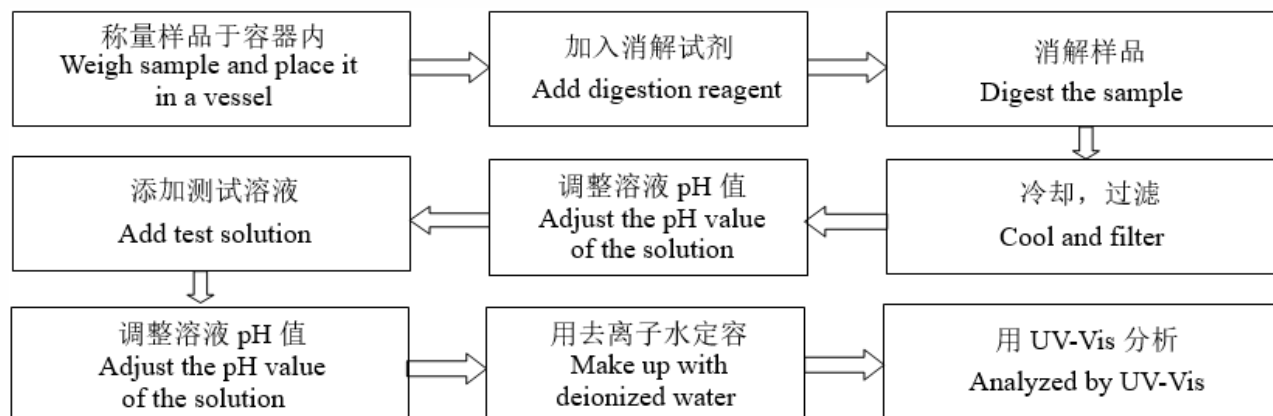


# 检测报告 Test Report

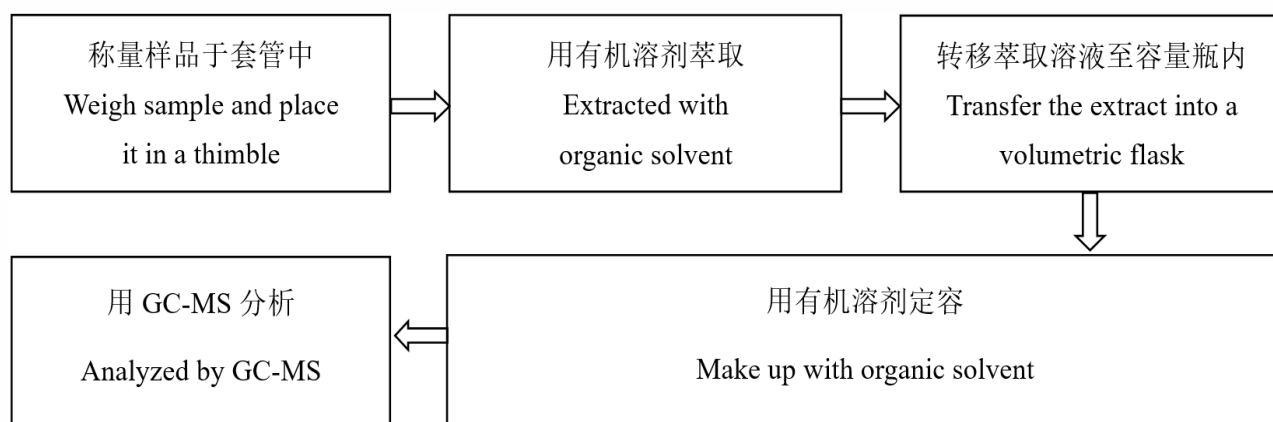
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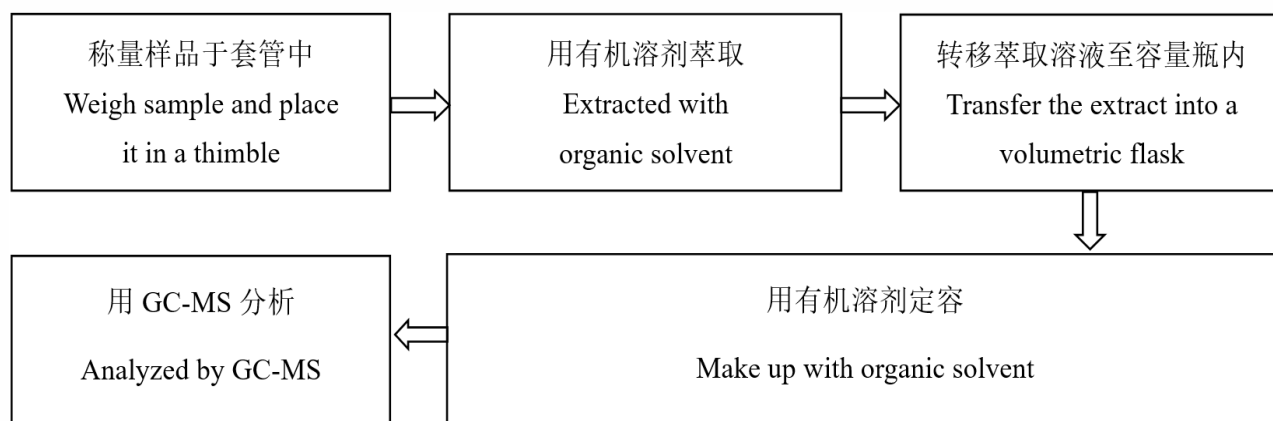
## (2) IEC 62321-7-2:2017



## 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)



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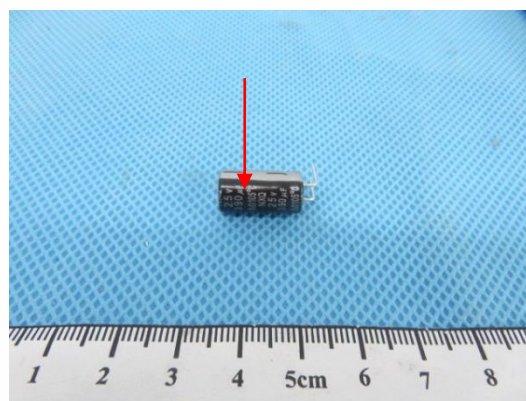
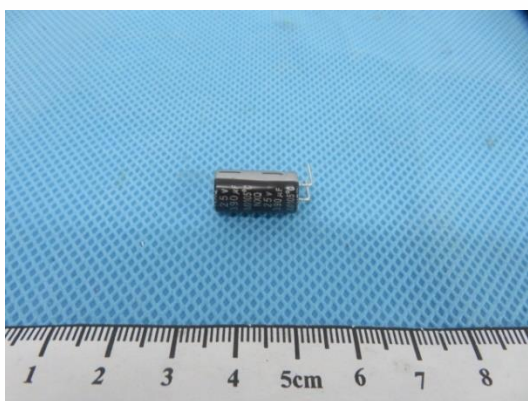
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## 样品图片

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

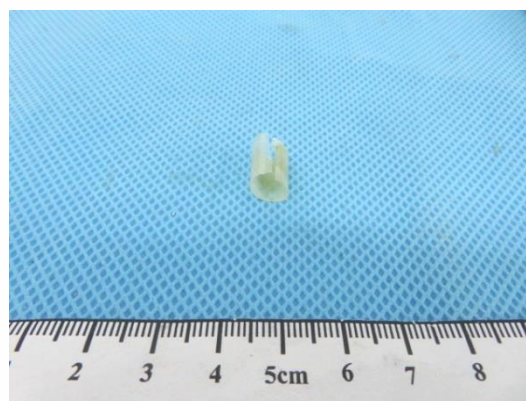
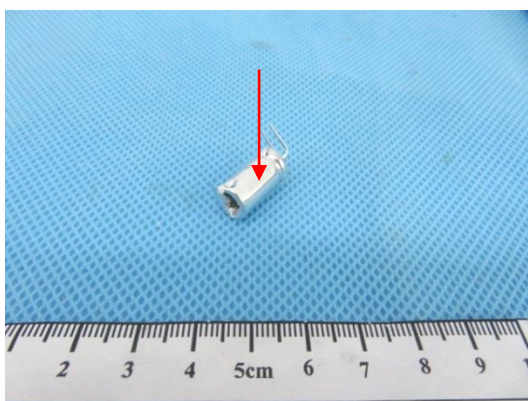
成品 Final Product

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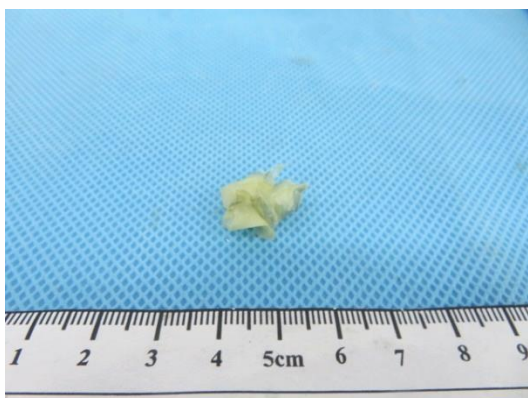


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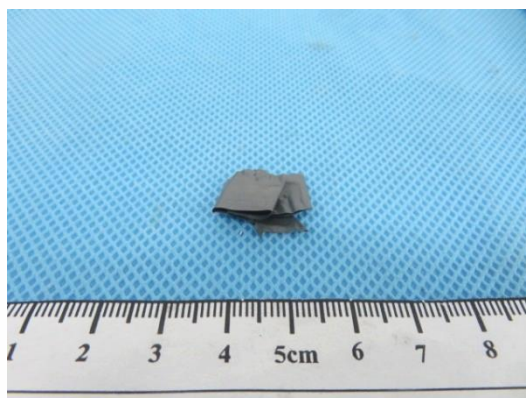
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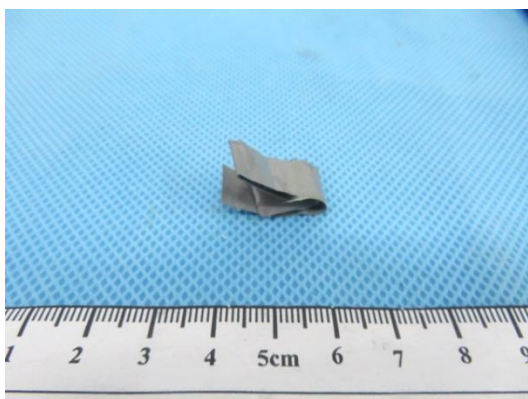
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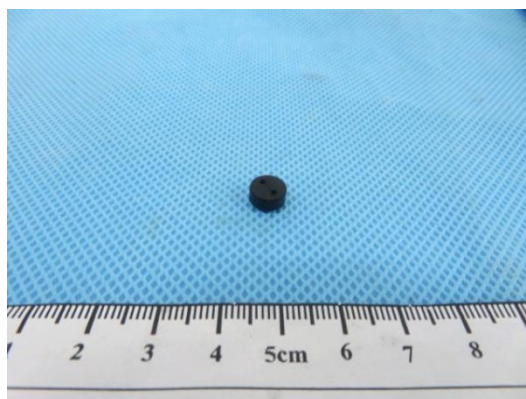
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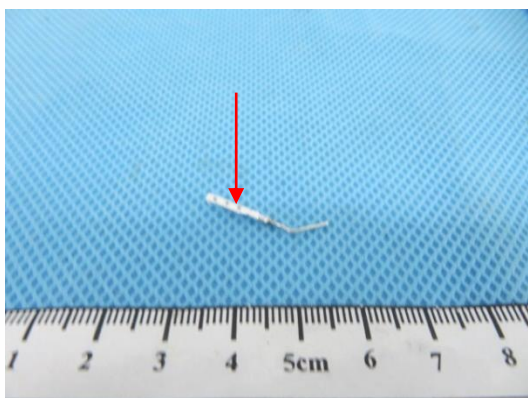
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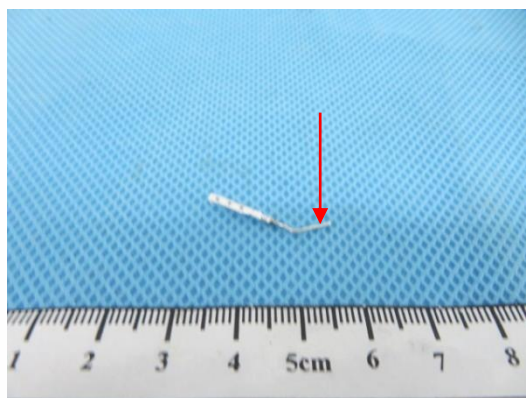
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声明 Statement:

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 \*\*\*

## 附录 Appendix

### 客户参考信息 Client Reference Information

SRE / SRA / CM-1 / CM-2 / LUG / CHIP

#### 声明 Statement:

1. 附录内容由申请者提供，申请者应对其真实性负责，CTI 未核实其真实性。  
The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.
2. 附录内容为 A2250459200101E 报告的补充。  
The Appendix Information is/are the supplement(s) for the Report A2250459200101E.

