

检测报告
Test Report

报告编号 A2170069302101E
Report No. A2170069302101E

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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

成品名称 水泥電阻
Final Product Name CEMENT POWER RESISTORS
样品接收日期 2017.12.21
Sample Received Date Dec. 21, 2017
样品检测日期 2017.12.21-2017.12.25
Testing Period Dec. 21, 2017 to Dec. 25, 2017

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).

主 检
Tested by

黄淑芳

审 核
Reviewed by

方煜松

准 批
Approved by

郑晴涛

日 期
Date

2017.12.25

郑晴涛

技术经理 Technical Manager

No. R169561049

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	符合 PASS

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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序号 No.	样品名称 Sample Name(s)
001	瓷壳 Porcelain case
002	瓷棒 Porcelain rods
003	石英沙填充料 Material quartz sand fills
004	引线型铁帽 Pin-type iron cap
005	插片型铁帽 Insert type money cap
006	电阻丝 Resistance wire
007	红色油墨 Red ink
008	黑色油墨 Black ink

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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 Ed.1.0	ICP-OES
镉 Cadmium(Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES
汞 Mercury(Hg)	IEC 62321-4:2013 Ed.1.0	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 Ed.1.0 测试总铬含量 IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013 Ed.1.0	UV-Vis/ICP-OES
多溴联苯 Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015 Ed 1.0	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015 Ed 1.0	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.	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))	N.D.	N.D.	N.D.	8 mg/kg	1000 mg/kg
	--	--	--	0.10 µg/cm ² (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 ² (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 ² (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		
多溴联苯 Polybrominated Biphenyls(PBBs)					
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		
多溴联苯 Polybrominated Biphenyls(PBBs)				
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		
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)					
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		
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)				
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		
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.	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		
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.	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

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 白色固体 White solid
- 004 带有银色镀层的金属 Metal with silvery plating
- 005 带有银色镀层的金属 Metal with silvery plating
- 006 银色金属线 Silvery metal wire
- 007 红色油墨 Red ink[#]
- 008 黑色油墨 Black ink[#]

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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。
-#测试样品经过 105°C 烘烤 2 小时后测试。

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.
-#The sample was tested after drying for 2 hours under 105°C .

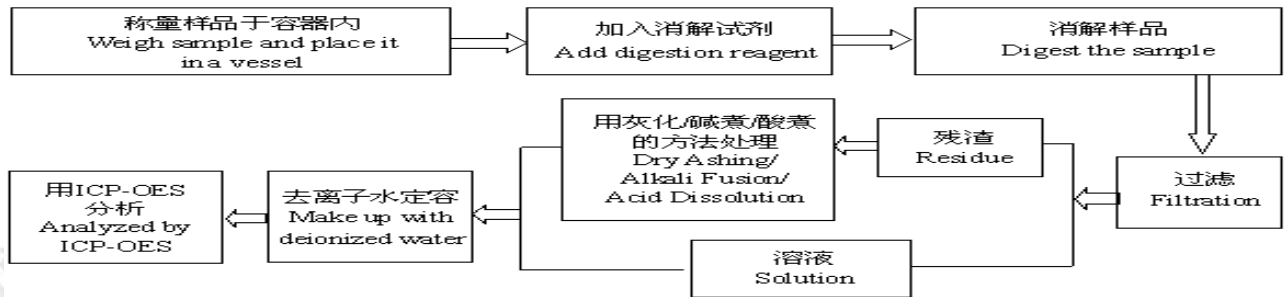
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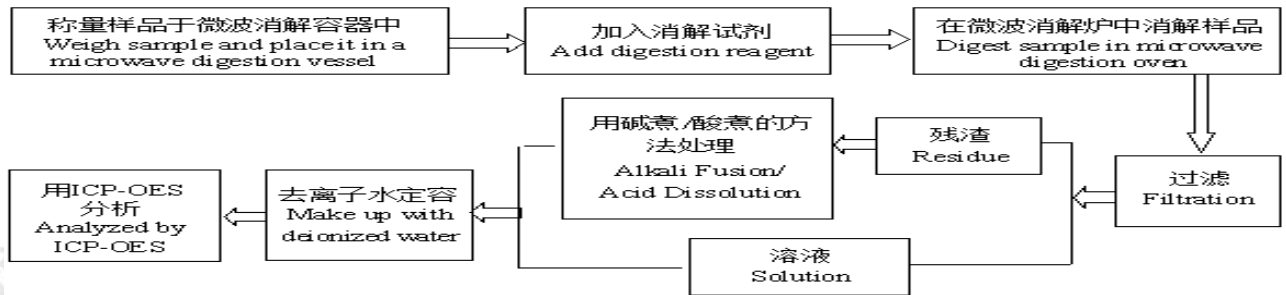
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检测流程 Test Process

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

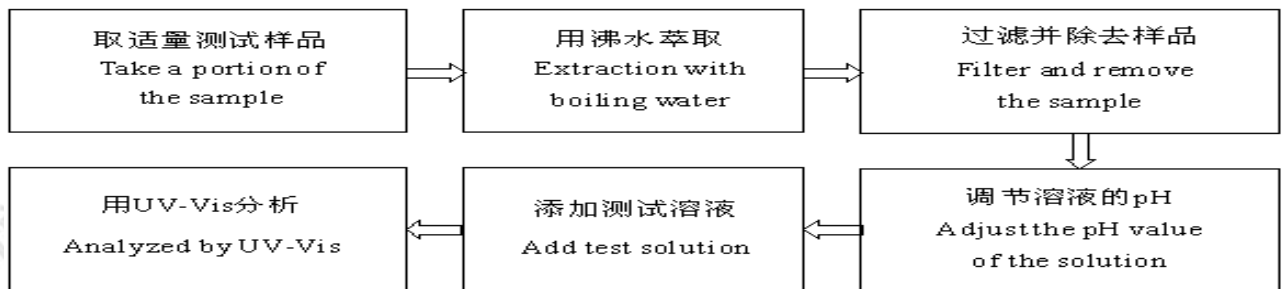


2. 汞 Mercury(Hg)



3. 六价铬 Hexavalent Chromium(Cr(VI))

(1) IEC 62321-7-1:2015

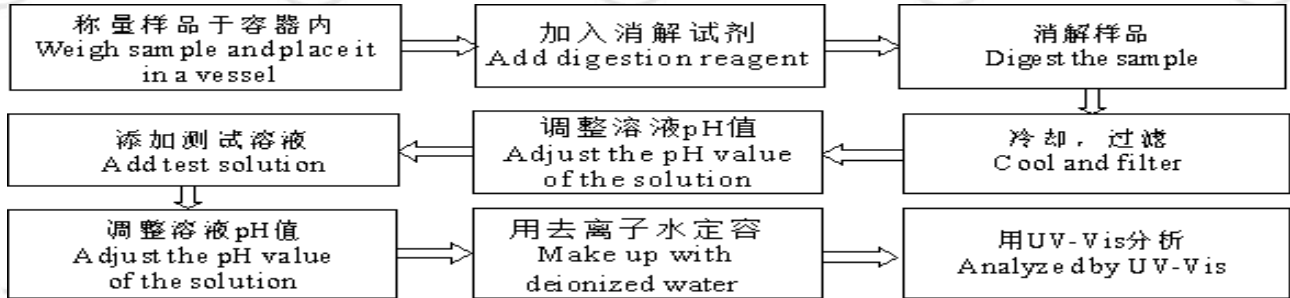


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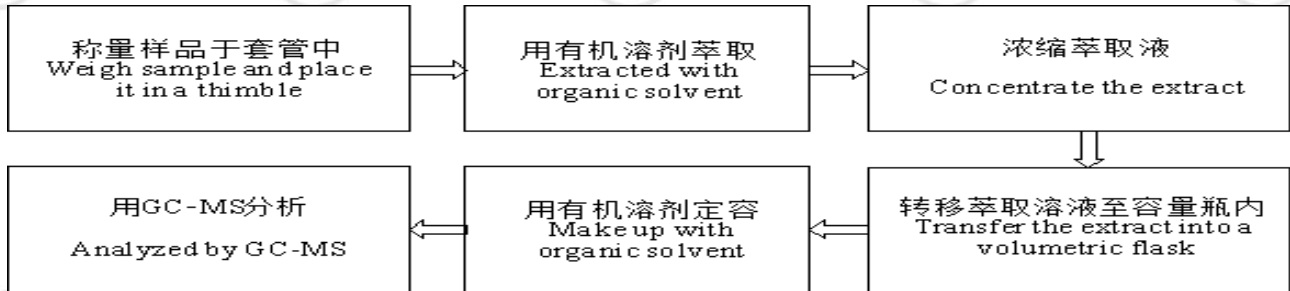
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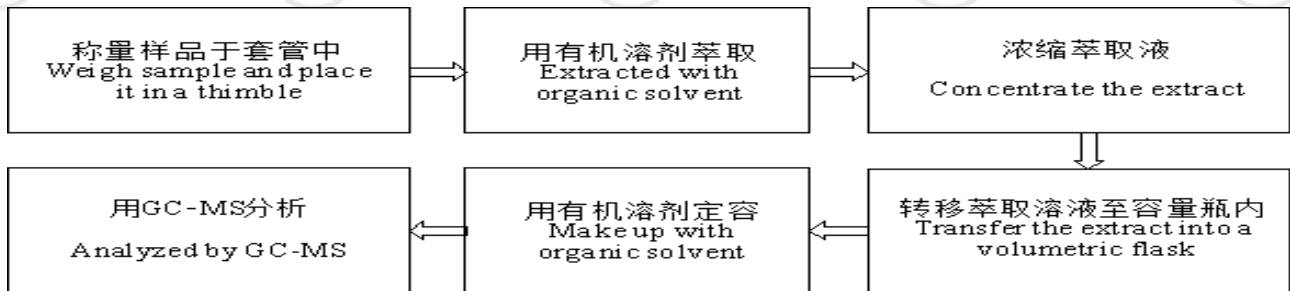
(2) IEC 62321-7-2:2017



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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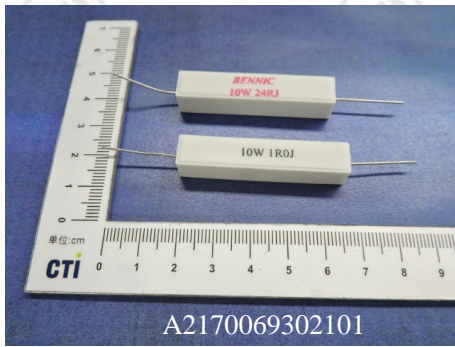
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样品图片 Photo(s) of the sample(s)

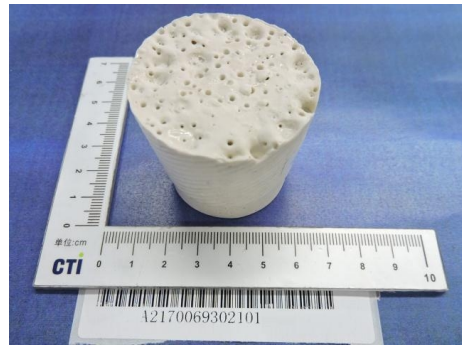
成品 Final Product

001



002

003



004

005



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*** 报告结束 ***

*** End of Report ***

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