

## 测试报告

No. CANEC1922604602

日期: 2019年11月15日 第1页,共8页

深圳市兴凯城电子有限公司

深圳市宝安区松岗街道塘下涌工业区1号厂房2楼

### 本报告取代测试报告CANEC1921449302

以下测试之样品是由申请者所提供及确认: PET 电解电容器

SGS工作编号: CP19-061126 - GZ  
样品接收日期: 2019年10月31日  
测试周期: 2019年10月31日 - 2019年11月05日  
测试要求: 根据客户要求测试  
测试方法: 请参见下一页  
测试结果: 请参见下一页

通标标准技术服务有限公司广州分公司  
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吕爱凤

Merry Lv 吕爱凤  
批准签署人



## 测试报告

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日期: 2019年11月15日 第2页,共8页

测试结果:

### 测试样品描述:

| 样品编号 | SGS样品ID          | 描述             |
|------|------------------|----------------|
| SN1  | CAN19-226046.002 | "PET电解电容器"(混合) |

备注:

- (1) 1 mg/kg = 0.0001%
- (2) MDL = 方法检测限
- (3) ND = 未检出 (< MDL)
- (4) "-" = 未规定

### 元素分析, 阻燃剂&邻苯二甲酸酯

测试方法: 参考IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 和 IEC 62321-8:2017, 采用 ICP-OES, UV-Vis 和 GC-MS 进行分析.

| 测试项目           | 单位    | MDL | 002 |
|----------------|-------|-----|-----|
| 镉 (Cd)         | mg/kg | 2   | ND  |
| 铅 (Pb)         | mg/kg | 2   | ND  |
| 汞 (Hg)         | mg/kg | 2   | ND  |
| 六价铬(Cr(VI))    | mg/kg | 8   | ND  |
| 多溴联苯之和(PBBs)   | mg/kg | -   | ND  |
| 一溴联苯           | mg/kg | 5   | ND  |
| 二溴联苯           | mg/kg | 5   | ND  |
| 三溴联苯           | mg/kg | 5   | ND  |
| 四溴联苯           | mg/kg | 5   | ND  |
| 五溴联苯           | mg/kg | 5   | ND  |
| 六溴联苯           | mg/kg | 5   | ND  |
| 七溴联苯           | mg/kg | 5   | ND  |
| 八溴联苯           | mg/kg | 5   | ND  |
| 九溴联苯           | mg/kg | 5   | ND  |
| 十溴联苯           | mg/kg | 5   | ND  |
| 多溴二苯醚之和(PBDEs) | mg/kg | -   | ND  |
| 一溴二苯醚          | mg/kg | 5   | ND  |
| 二溴二苯醚          | mg/kg | 5   | ND  |
| 三溴二苯醚          | mg/kg | 5   | ND  |
| 四溴二苯醚          | mg/kg | 5   | ND  |
| 五溴二苯醚          | mg/kg | 5   | ND  |



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日期: 2019年11月15日 第3页,共8页

| 测试项目                  | 单位    | MDL | 002 |
|-----------------------|-------|-----|-----|
| 六溴二苯醚                 | mg/kg | 5   | ND  |
| 七溴二苯醚                 | mg/kg | 5   | ND  |
| 八溴二苯醚                 | mg/kg | 5   | ND  |
| 九溴二苯醚                 | mg/kg | 5   | ND  |
| 十溴二苯醚                 | mg/kg | 5   | ND  |
| 邻苯二甲酸二丁酯 (DBP)        | mg/kg | 50  | ND  |
| 邻苯二甲酸丁苄酯(BBP)         | mg/kg | 50  | ND  |
| 邻苯二甲酸二(2-乙基己基)酯(DEHP) | mg/kg | 50  | ND  |
| 邻苯二甲酸二异丁酯(DIBP)       | mg/kg | 50  | ND  |

### 备注:

(1)IEC 62321 系列等同于 EN 62321 系列

[https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:1258637,25](https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25)

(2) 2021年7月22号开始, DEHP, BBP, DBP 和 DIBP的限制适用于医疗器械, 包括体外医疗器械, 监控仪表, 包括工业监测和控制仪器。

(3) DEHP, BBP, DBP 和 DIBP的限制不适用于玩具产品, 因为No.1907/2006附录XVII第51条已对玩具产品中的DEHP, BBP, DBP 和 DIBP含量进行了限制。

### 卤素

测试方法: 参考EN 14582:2016, 用 IC分析。

| 测试项目   | 单位    | MDL | 002 |
|--------|-------|-----|-----|
| 氟 (F)  | mg/kg | 50  | ND  |
| 氯 (Cl) | mg/kg | 50  | 108 |
| 溴 (Br) | mg/kg | 50  | ND  |
| 碘 (I)  | mg/kg | 50  | ND  |

### 邻苯二甲酸盐(或酯)

测试方法: 参考EN 14372: 2004的方法测定, 采用GC-MS进行分析。

| 测试项目                   | CAS NO.                    | 单位     | MDL   | 002 |
|------------------------|----------------------------|--------|-------|-----|
| 邻苯二甲酸二丁酯 (DBP)         | 84-74-2                    | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸丁苄酯 (BBP)         | 85-68-7                    | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二(2-乙基己基)酯 (DEHP) | 117-81-7                   | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二异壬酯 (DINP)       | 28553-12-0 /<br>68515-48-0 | %(w/w) | 0.010 | ND  |



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日期: 2019年11月15日 第4页,共8页

| 测试项目                   | CAS NO.                    | 单位     | MDL   | 002 |
|------------------------|----------------------------|--------|-------|-----|
| 邻苯二甲酸二正辛酯 (DNOP)       | 117-84-0                   | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二异癸酯 (DIDP)       | 26761-40-0 /<br>68515-49-1 | %(w/w) | 0.010 | ND  |
| 邻苯二甲酸二甲酯 (DMP)         | 131-11-3                   | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二乙酯 (DEP)         | 84-66-2                    | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二异丁酯 (DIBP)       | 84-69-5                    | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二壬酯 (DNP)         | 84-76-4                    | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二异辛酯 (DIOP)       | 27554-26-3                 | %(w/w) | 0.010 | ND  |
| 邻苯二甲酸二丙酯 (DPrP)        | 131-16-8                   | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二环己酯 (DCHP)       | 84-61-7                    | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二戊酯 (DPENP/ DnPP) | 131-18-0                   | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二苈酯 (DBzP)        | 523-31-9                   | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二苯酯 (DPhP)        | 84-62-8                    | %(w/w) | 0.003 | ND  |
| 邻苯二甲酸二正己酯 (DnHP)       | 84-75-3                    | %(w/w) | 0.003 | ND  |

### 备注:

(1) DBP、BBP、DEHP、DIBP参考信息: 1907/2006/EC Reach 附录XVII的修正指令——2018/2005/EU 第51条的要求:

i) 不允许DBP、BBP、DEHP、DIBP单一质量浓度或质量浓度总和等于或高于0.1%的可塑性物料用于玩具和儿童护理品。

ii) 当玩具和儿童护理品中的可塑性物料含DBP、BBP、DEHP单一质量浓度或质量浓度总和等于或高于0.1%时,不得投放市场。另外,当玩具和儿童护理品中的可塑性物料含DIBP单一质量浓度或DBP、BBP、DEHP、DIBP质量浓度总和等于或高于0.1%时,2020年7月7日后不得投放市场。

iii) 当成品中的可塑性物料含DBP、BBP、DEHP、DIBP单一质量浓度或质量浓度总和等于或高于0.1%时,2020年7月7日后不得投放市场。

详细信息请参见Regulation (EU) No 2018/2005。

(2) DINP、DNOP、DIDP参考信息: 1907/2006/EC Reach 附录XVII的修正指令——552/2009/EC 第52条(前身为2005/84/EC)的要求:

i) 不允许DINP、DNOP、DIDP质量浓度高于0.1%的可塑性物料用于可放入儿童口中的玩具和儿童护理品。

ii) 当可放入儿童口中的玩具和儿童护理品中的可塑性物料含DINP, DNOP, DIDP质量浓度高于0.1%时,不得投放市场。

详细信息请参见Regulation (EC) No 552/2009。

备注: 样品的测试是基于申请人要求混合测试, 报告中的混合测试结果不代表其中个别单一材质的含量, 该测试数据仅供参考。

检测报告仅用于客户科研、教学、内部质量控制、产品研发等目的, 仅供内部参考。



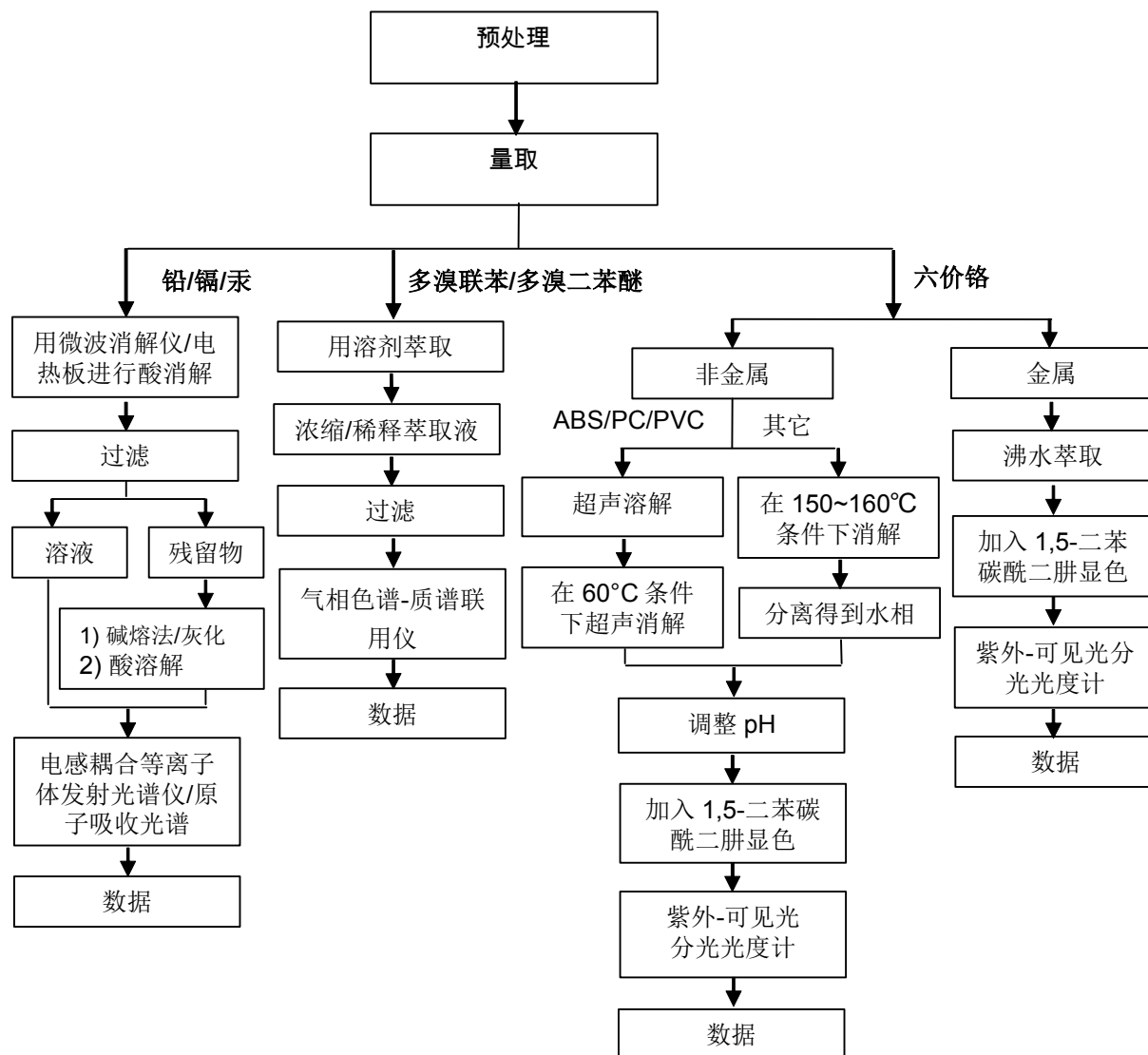
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附件

## Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs 测试流程图

1) 样品按照下述流程被完全消解（六价铬和多溴联苯/多溴二苯醚测试除外）。



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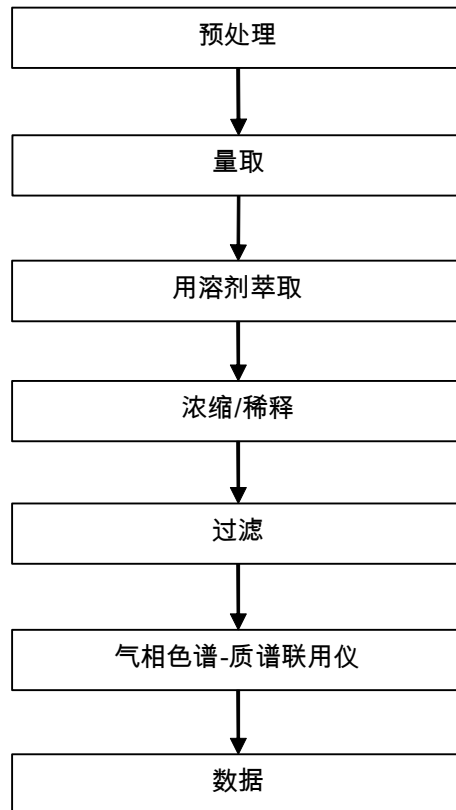
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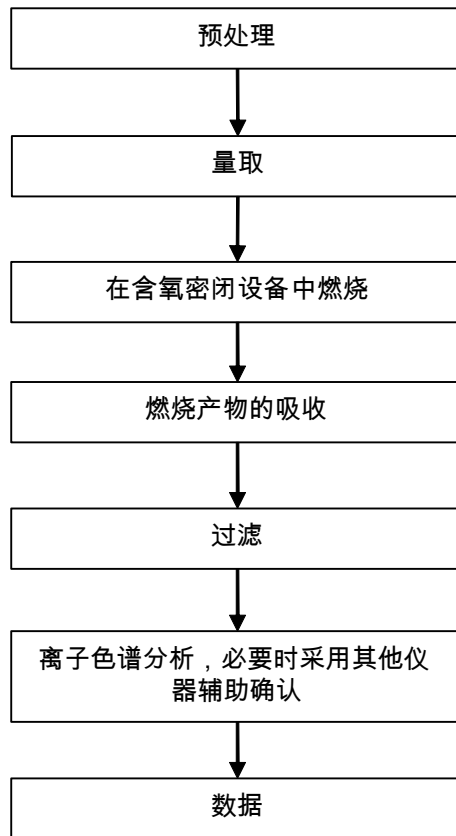
附件

### Phthalates 测试流程图

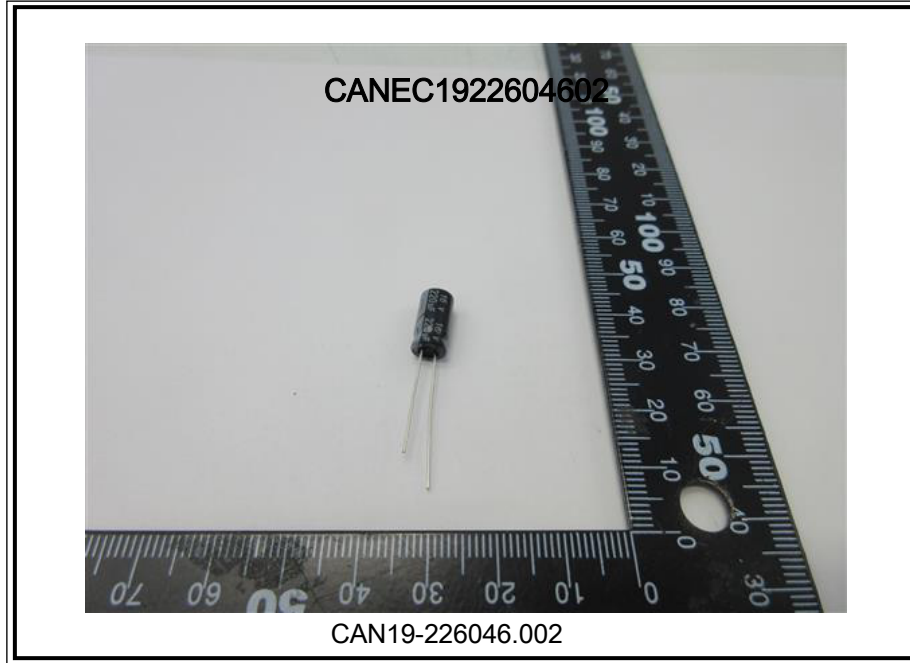


附件

### Halogen 测试流程图



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