

## 测试报告

No. CANEC1517485602

日期: 2015年10月26日 第1页,共12页

深圳市凯琦佳科技股份有限公司

广东省深圳市龙岗区葵涌镇葵新社区知己工业园二期4#厂房201

以下测试之样品是由申请者所提供及确认: 铝电解电容器

SGS工作编号: CP15-054089 - SZ

型号: 10000uF/400V

客户参考信息: FE20/FE22、FE21/FE23、FE26/FE28、FE50/FE52、FET2/FET4  
FET5/FET7、FH20/FH22、FH50/FH52、FZT5/FZT7、FX20/FX22  
BH20/BH50、PE20/PE50、PH20/PH50、PS20/PS50

料号: FE20400103A6D000

批号: 15090063

样品接收日期: 2015年10月14日

测试周期: 2015年10月14日 - 2015年10月20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  
授权签名

吕爱凤

Merry Lv 吕爱凤  
批准签署人

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日期: 2015年10月26日 第2页,共12页

### 测试样品描述:

样品编号	SGS样品ID	描述
SN1	CAN15-174856.001	带金色和白色印字的黑色塑胶(半成品)+浅棕色纸(半成品)+黑色物料(半成品)
SN2	CAN15-174856.002	灰色箔(半成品)+银灰色箔(半成品)+银色金属(半成品)“2C”+银色金属壳(半成品)+银色金属(半成品)“2E”

### 备注:

- (1) 1 mg/kg = 1 ppm = 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:
- (1)参考IEC 62321-5:2013, 用ICP-OES测定镉的含量
  - (2)参考IEC 62321-5:2013, 用ICP-OES测定铅的含量
  - (3)参考IEC 62321-4:2013, 用ICP-OES测定汞的含量
  - (4)参考IEC 62321:2008, 用紫外-可见分光光度计比色法测定六价铬的含量
  - (5)参考IEC 62321-6:2015, 用GC-MS测定PBBs(多溴联苯)和PBDEs(多溴二苯醚)的含量
  - (6)参考EN 14372:2004, 用GC-MS测定邻苯二甲酸酯的含量

测试项目	限值	单位	MDL	001
镉 (Cd)	100	mg/kg	2	ND
铅 (Pb)	1,000	mg/kg	2	ND
汞 (Hg)	1,000	mg/kg	2	ND
六价铬(Cr(VI))	1,000	mg/kg	2	ND
多溴联苯之和(PBBs)	1,000	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



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测试项目	限值	单位	MDL	001
多溴二苯醚之和(PBDEs)	1,000	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
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)	1,000	mg/kg	30	ND
邻苯二甲酸丁苄酯(BBP)	1,000	mg/kg	30	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1,000	mg/kg	30	ND
邻苯二甲酸二异丁酯(DIBP)	1,000	mg/kg	30	ND

备注:

(1) 最大允许极限值引用自RoHS指令(EU) 2015/863。

## 元素分析

测试方法:

- (1)参考IEC 62321-5:2013, 用ICP-OES测定镉的含量
- (2)参考IEC 62321-5:2013, 用ICP-OES测定铅的含量
- (3)参考IEC 62321-4:2013, 用ICP-OES测定汞的含量
- (4)参考IEC 62321:2008, 用点测试法/紫外-可见分光光度计比色法测定六价格的含量

测试项目	限值	单位	MDL	002
镉 (Cd)	100	mg/kg	2	ND
铅 (Pb)	1,000	mg/kg	2	ND
汞 (Hg)	1,000	mg/kg	2	ND
六价格(Cr(VI))	-	-	◇	阴性

备注:

(1) 最大允许极限值引用自RoHS指令(EU) 2015/863。  
 (2) ◇点测试法:  
 阴性= 未检测到六价格, 阳性= 检测到六价格;  
 (当点测试结果为阴性或无法确定时,将采用沸水萃取法作进一步的结果验证.)  
 ◇沸水萃取法:  
 阴性= 未检测到六价格



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日期: 2015年10月26日 第4页,共12页

阳性= 检测到六价铬; 表明50 cm<sup>2</sup>表面积的被测试样品的沸水萃取液中六价铬的浓度等于或大于0.02 mg/kg

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。

### 卤素

测试方法: 参照EN 14582:2007方法测定, 采用IC进行分析。

测试项目	单位	MDL	001
氟 (F)	mg/kg	50	ND
碘 (I)	mg/kg	50	ND

### 全氟辛烷磺酰基化合物(PFOS)

测试方法: 参照US EPA 3550C: 2007方法测定, 采用HPLC-MS进行分析。

测试项目	CAS NO.	单位	MDL	001
全氟辛烷磺及其衍生物 (PFOS)^	-	mg/kg	10	ND

备注:

(1)(EC) No 850/2004 补充指令 (EU) No 757/2010的要求:

第4章 (1) (b) 款适用于PFOS浓度等于或低于10mg/kg (0.001%重量比) 的物质或配制品。

第4章 (1) (b) 款适用于PFOS浓度低于0.1% (重量比) 的半成品, 成品或者它们的部件, 以含有PFOS的结构或特殊部件的局部结构计算, 对于纺织品和其它涂层的材料, PFOS的量低于1µg/m<sup>2</sup>。

(2) ^: 全氟辛烷磺酸(PFOS)及其衍生物包含全氟辛烷磺酸(PFOS)、全氟辛基磺酰胺(PFOSA)、2- (N-乙基全氟辛基磺酰胺) 乙醇(EtFOSE)、N-甲基全氟辛烷磺酰胺(MeFOSA)、N-乙基全氟辛烷磺酰胺(EtFOSA)和2- (N-甲基全氟辛基磺酰胺) 乙醇(MeFOSE)。

### 多环芳香烃(PAHs)

测试方法: 参考AfPS GS 2014:01 PAK测试, 采用 GC-MS进行分析。

测试项目	CAS NO.	单位	MDL	001
萘 (NAP)	91-20-3	mg/kg	0.1	ND
苊烯(ANY)	208-96-8	mg/kg	0.1	ND
苊(萘嵌戊烷) (ANA)	83-32-9	mg/kg	0.1	ND
芴 (FLU)	86-73-7	mg/kg	0.1	ND
菲 (PHE)	85-01-8	mg/kg	0.1	ND
蒽 (ANT)	120-12-7	mg/kg	0.1	ND



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日期: 2015年10月26日 第5页,共12页

测试项目	CAS NO.	单位	MDL	001
荧蒽 (FLT)	206-44-0	mg/kg	0.1	ND
芘 (PYR)	129-00-0	mg/kg	0.1	ND
苯并(a)蒽 (BaA)	56-55-3	mg/kg	0.1	ND
屈 (CHR)	218-01-9	mg/kg	0.1	ND
苯并(b)荧蒽 (BbF)	205-99-2	mg/kg	0.1	ND
苯并(j)荧蒽 (BjF)	205-82-3	mg/kg	0.1	ND
苯并(k)荧蒽 (BkF)	207-08-9	mg/kg	0.1	ND
苯并(a)芘 (BaP)	50-32-8	mg/kg	0.1	ND
苯并(e)芘 (BeP)	192-97-2	mg/kg	0.1	ND
茚并(1,2,3-c,d)芘 (IPY)	193-39-5	mg/kg	0.1	ND
二苯并(a,h)蒽(DBA)	53-70-3	mg/kg	0.1	ND
苯并(g,h,i)芘(二苯并苯) (BPE)	191-24-2	mg/kg	0.1	ND
7项多环芳香烃总和[苊烯(ANY), 苊(蔡嵌戊烷) (ANA), 芴 (FLU), 菲 (PHE), 芘 (PYR), 蒽 (ANT), 荧蒽 (FLT)]		mg/kg	-	ND
18项多环芳香烃总和		mg/kg	-	ND



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### AfPS(德国产品安全委员会):GS 认证对多环芳香烃的要求

参数	1 类	2 类		3 类	
	设计意图为放入口中的材料或者玩具上与皮肤接触的材料(接触时间大于30秒).	未在 1 类规定中涵盖的材料,且可能与皮肤接触时间大于 30 秒的材料(长时间接触皮肤)或频繁接触皮肤.		未在 1 和 2 类规定中涵盖的材料,且可能与皮肤接触的少于 30 秒的材料(短期接触皮肤)	
		2009/48/EC 中适用的玩具	产品安全法涉及的其他产品	2009/48/EC中适用的玩具	产品安全法涉及的其他产品
苯并(a)芘 (BaP) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(e)芘 (BeP) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(a)蒽 (BaA) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(b)荧蒽 (BbF) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(j)荧蒽 (BjF) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(k)荧蒽mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
屈 (CHR) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
二苯并(a,h)蒽(DBA)mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(g,h,i)花(二苯嵌苯)(BPE)n mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
茚并(1,2,3-c,d)芘 (IPY) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
萘烯(ANY), 萘(萘嵌戊烷)(ANA), 芴 (FLU), 菲 (PHE), 芘 (PYR), 蒽 (ANT), 荧蒽 (FLT)之和 mg/kg	< 1 (总和)	< 5 (总和)	< 10 (总和)	< 20 (总和)	< 50 (总和)
萘 (NAP) mg/kg	< 1	< 2		< 10	
18 PAH之和	<1	< 5	< 10	< 20	< 50

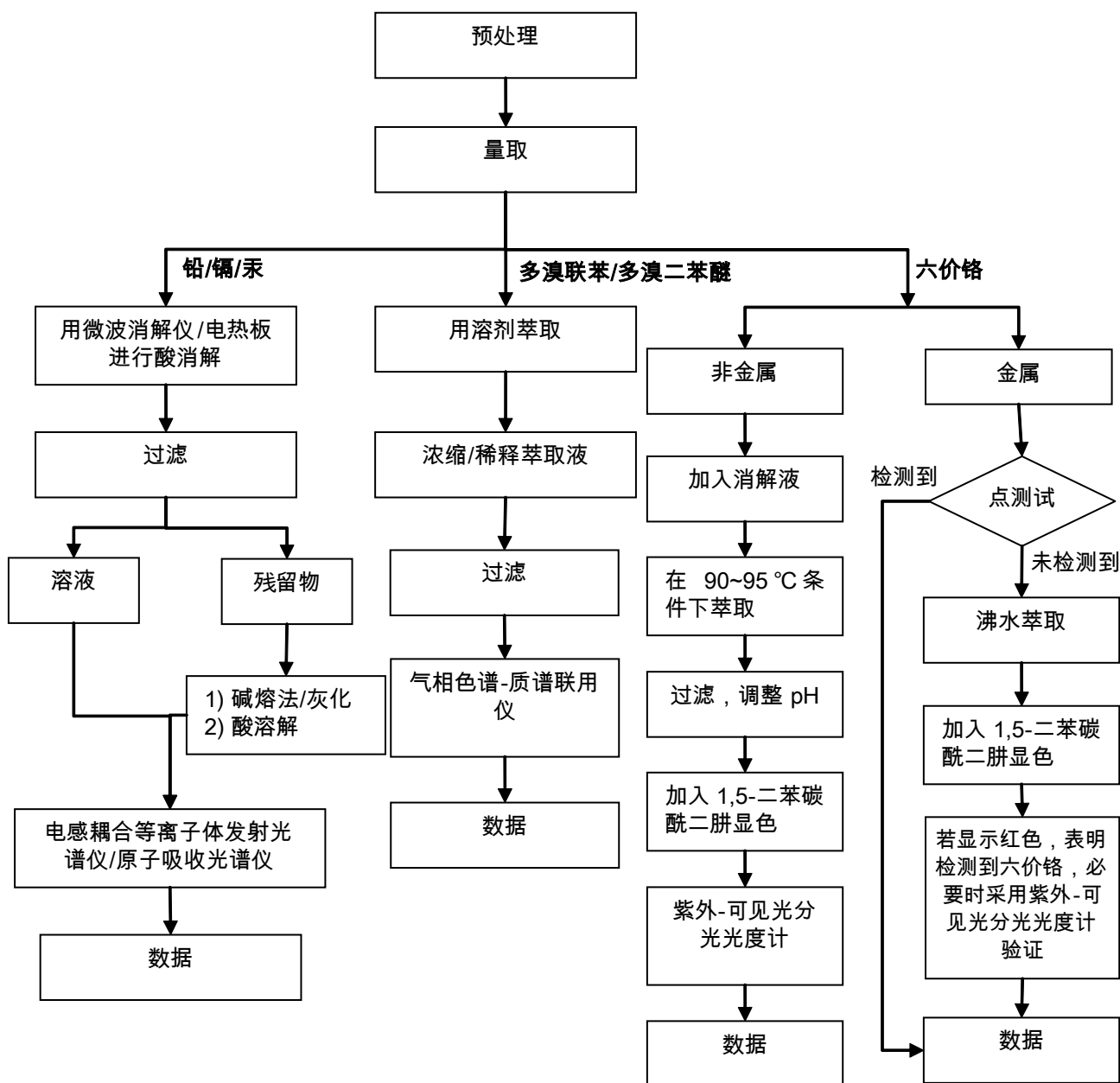
备注1: 结果基于混合样品的总重计算。

备注2: 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。

## 附件

### RoHS 测试流程图

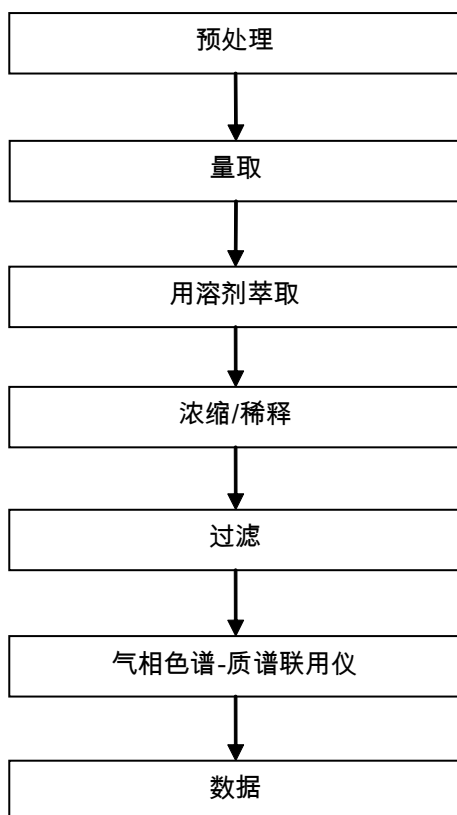
- 1) 分析人员：肖戈 / 胡香云
- 2) 项目负责人：汪丹 / 余晓璐
- 3) 样品按照下述流程被完全消解（六价铬和多溴联苯 / 多溴二苯醚测试除外）。



## 附件

### Phthalates 测试流程图

- 1) 分析人员：胡香云
- 2) 项目负责人：余晓璐

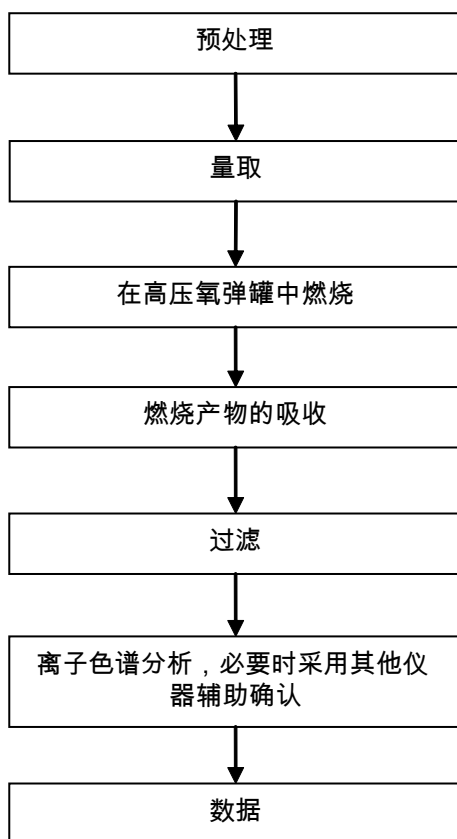




## 附件

### Halogen 测试流程图

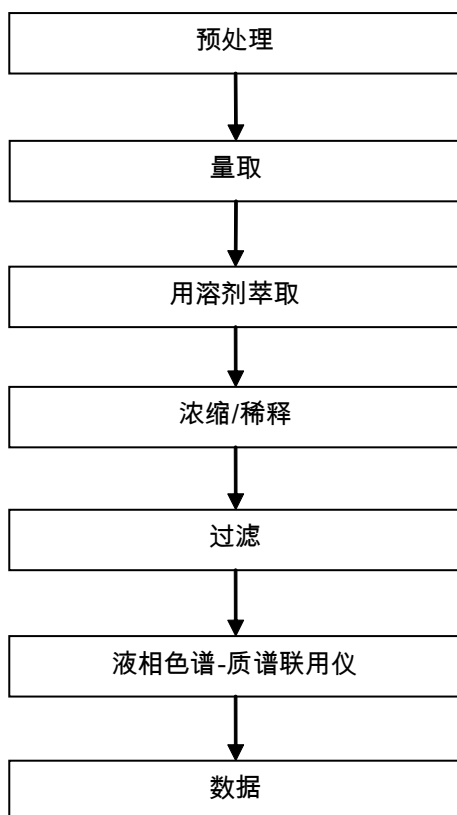
- 1) 分析人员：萧汉明
- 2) 项目负责人：汪丹



## 附件

### PFOA / PFOS 测试流程图

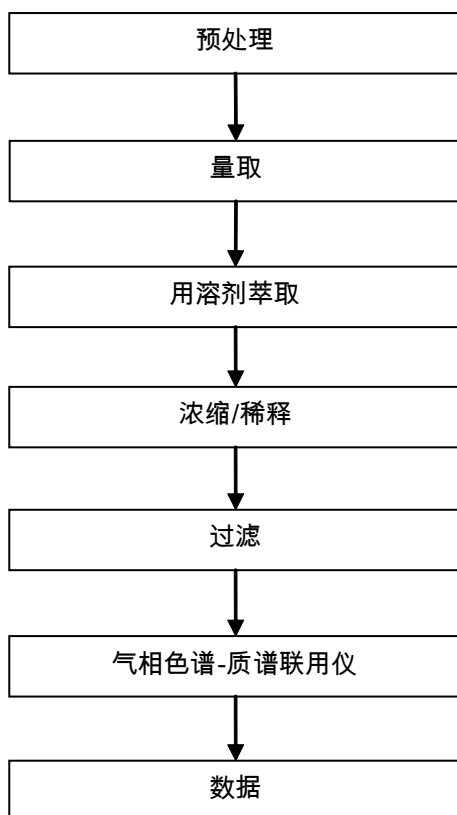
- 1) 分析人员：王志红
- 2) 项目负责人：余晓璐



## 附件

### PAHs 测试流程图

- 1) 分析人员：胡香云
- 2) 项目负责人：余晓璐



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