

测试报告

No. CANEC2124883112

日期: 2022年01月12日 第1页,共14页

佛冈建滔实业有限公司

广东省佛冈县石角镇建滔路1号

以下测试之样品是由申请者所提供及确认: 电解铜箔

SGS工作编号: CP21-067886 - GZ

型号: MR

样品接收日期: 2021年12月30日

测试周期: 2021年12月30日 - 2022年01月10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

结论: 基于所送样品进行的测试, 镉、铅、汞、六价铬、多溴联苯(PBBs)、多溴二苯醚(PBDEs)、邻苯二甲酸酯(如邻苯二甲酸二丁酯(DBP)、邻苯二甲酸丁苄酯(BBP)、邻苯二甲酸二(2-乙基己基)酯(DEHP)和邻苯二甲酸二异丁酯(DIBP))的测试结果符合欧盟RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863的限值要求。

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授权签名

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Allie Chen陈江梨
批准签署人

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SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch Testing Center Chemical Laboratory

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测试报告

No. CANEC2124883112

日期: 2022年01月12日 第2页,共14页

测试结果:

测试样品描述:

样品编号	SGS样品ID	描述
SN1	CAN21-248831.002	铜色金属箔

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

RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863

测试方法: 参考IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, 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	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
六价铬(Cr(VI))▼	-	µg/cm ²	0.10	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
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



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测试项目	限值	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)	1000	mg/kg	50	ND
邻苯二甲酸丁苯酯(BBP)	1000	mg/kg	50	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1000	mg/kg	50	ND
邻苯二甲酸二异丁酯(DIBP)	1000	mg/kg	50	ND

备注:

- (1)最大允许极限值引用自RoHS指令(EU) 2015/863。
- (2) 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
- (3) ▼a. 当六价铬的浓度高于0.13 $\mu\text{g}/\text{cm}^2$ 时, 样品为阳性, 即含有六价铬;
 b. 当六价铬的浓度为ND(低于0.10 $\mu\text{g}/\text{cm}^2$) 时, 样品为阴性, 即未检测到六价铬;
 c. 当六价铬的浓度介于0.10 $\mu\text{g}/\text{cm}^2$ 与0.13 $\mu\text{g}/\text{cm}^2$ 之间时, 无法直接判定是否检测到六价铬, 因不同个体的样品表面差异可能会影响测定结果;
 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	ND
溴 (Br)	mg/kg	50	ND
碘 (I)	mg/kg	50	ND

元素分析

测试方法: SGS内部方法 (GZTC CHEM-TOP-009-01, 参考EPA 3050B:1996), 采用ICP-OES进行分析。



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测试项目	单位	MDL	002
锑 (Sb)	mg/kg	10	ND
砷 (As)	mg/kg	10	ND
铍 (Be)	mg/kg	5	ND

红磷

测试方法: SGS内部方法(SGS-CCL-TOP-215-01), 采用PY-GC/MS / ICP-OES / GC-MS 进行分析。

测试项目	单位	MDL	002
红磷	mg/kg	500	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 / 68515-48-0	%(w/w)	0.010	ND
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 / 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
邻苯二甲酸二苄酯 (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:



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(1) DBP、BBP、DEHP、DIBP参考信息: 欧盟决议(EC) No 1907/2006 REACH 附录XVII及其修正法案(EU) 2018/2005 第51条:

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) 2018/2005

(2) DINP、DNOP、DIDP参考信息: 欧盟决议(EC) No 1907/2006 REACH 附录XVII及修正法案(EU) 2015/326 第52条:

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 (EU) 2015/326

全氟辛酸(PFOA)及其盐 & 全氟辛烷磺酸 (PFOS)及其衍生物

测试方法: 参考CEN/TS 15968:2010, 采用LC-MS或LC-MS/MS进行分析。

测试项目	CAS NO.	单位	MDL	002
全氟辛酸 (PFOA)及其盐+	335-67-1	mg/kg	0.010	ND
全氟辛烷磺酸 (PFOS) [^]	1763-23-1	mg/kg	0.010	ND
全氟辛基磺酰胺(PFOSA)	754-91-6	mg/kg	0.010	ND
N-甲基全氟辛烷磺酰胺(MeFOSA)	31506-32-8	mg/kg	0.010	ND
N-乙基全氟辛烷磺酰胺(EtFOSA)	4151-50-2	mg/kg	0.010	ND
2-(N-甲基全氟辛基磺酰胺)乙醇(MeFOSE)	24448-09-7	mg/kg	0.010	ND
2-(N-乙基全氟辛基磺酰胺)乙醇(EtFOSE)	1691-99-2	mg/kg	0.010	ND
全氟辛烷磺酸 (PFOS)及其衍生物	-	mg/kg	-	ND

备注:

(1) + PFOA 及其盐包含PFOA-Na (CAS No.: 335-95-5), PFOA-K (CAS No.: 2395-00-8), PFOA-Ag (CAS No.: 335-93-3), PFOA-F (CAS No.: 335-66-0) 和 APFO (CAS No.: 3825-26-1);

(2) [^] 全氟辛烷磺酸 (PFOS)包含 PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH₄ (CAS No.: 29081-56-9), PFOS-NH(OH)₂ (CAS No.: 70225-14-8), PFOS-N(C₂H₅)₄ (CAS No.: 56773-42-3), PFOS-DDA (CAS No.:251099-16-8) 和POSF (CAS No.: 307-35-7)

六溴环十二烷(HBCDD)

测试方法: SGS 内部方法(GZTC CHEM-TOP-073, 参考EPA 3550C:2007), 采用GC-MS进行分析。



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测试报告

No. CANEC2124883112

日期: 2022年01月12日

第6页,共14页

测试项目	CAS NO.	单位	MDL	002
六溴环十二烷(HBCDD) 及其非对映异构体(α -HBCDD, β -HBCDD, γ -HBCDD)	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8	mg/kg	10	ND

备注: 本报告中的测试结果和照片引用自报告CANEC2124883107。

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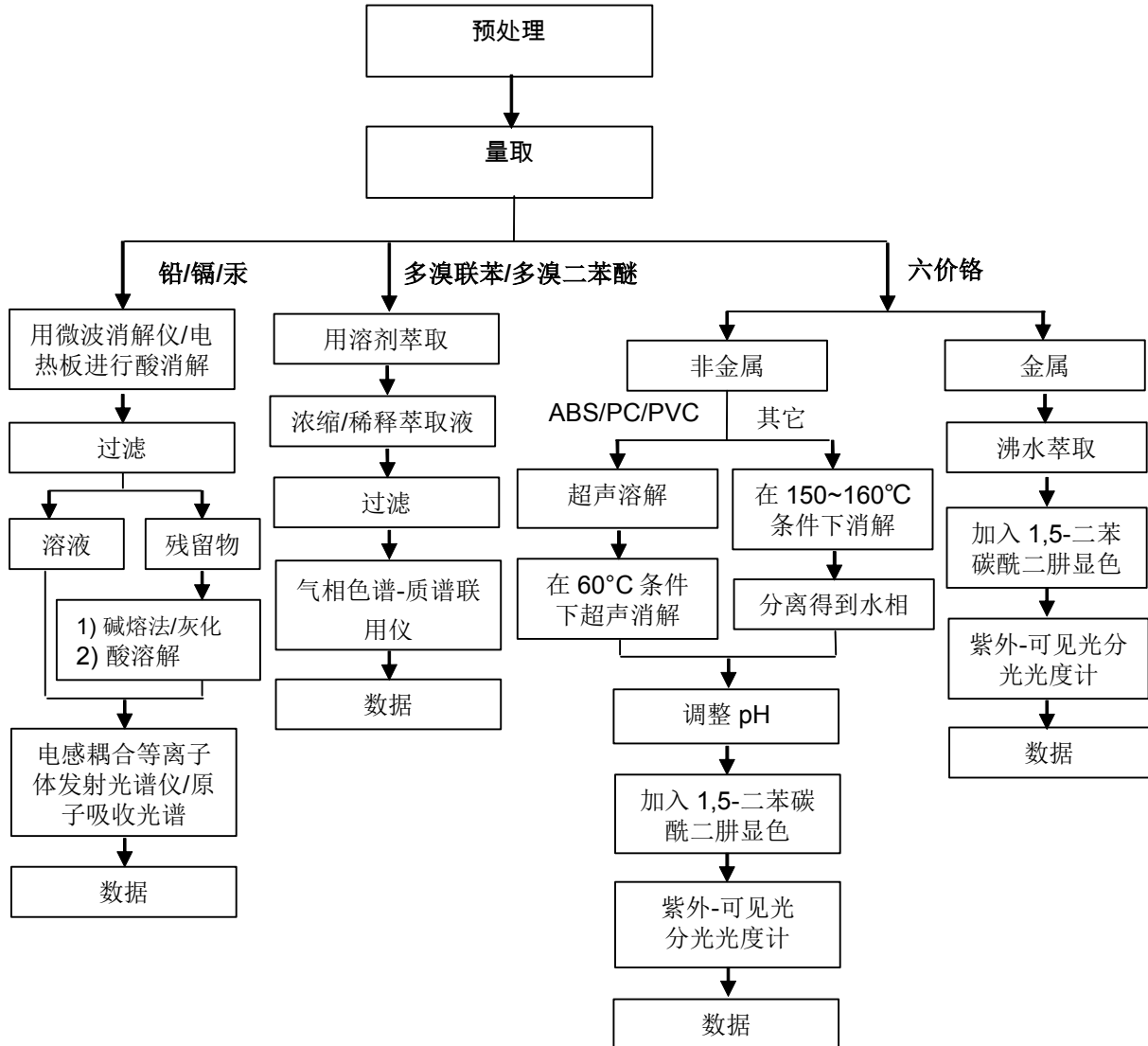
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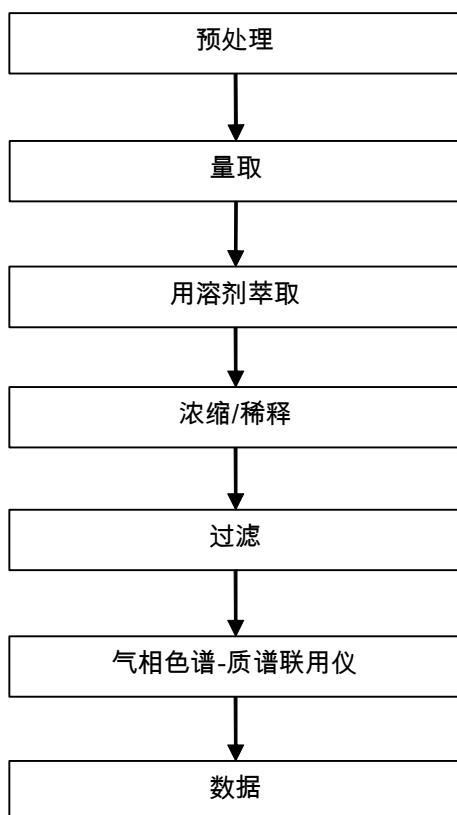
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs 测试流程图

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）。



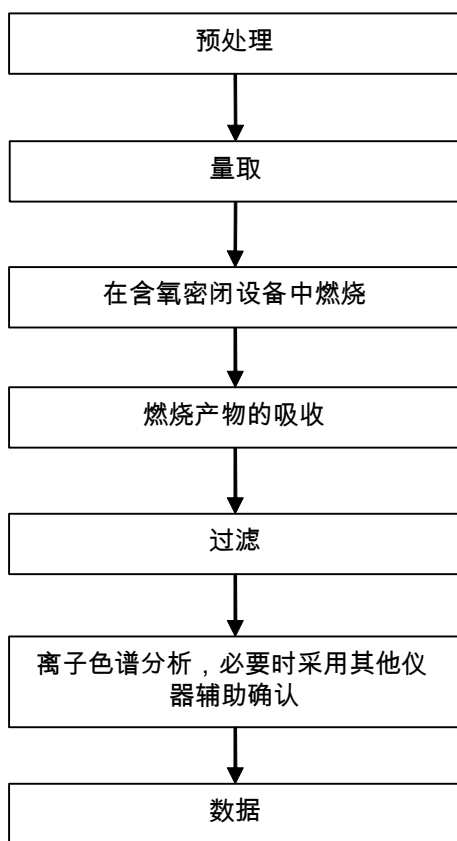
附件

Phthalates 测试流程图



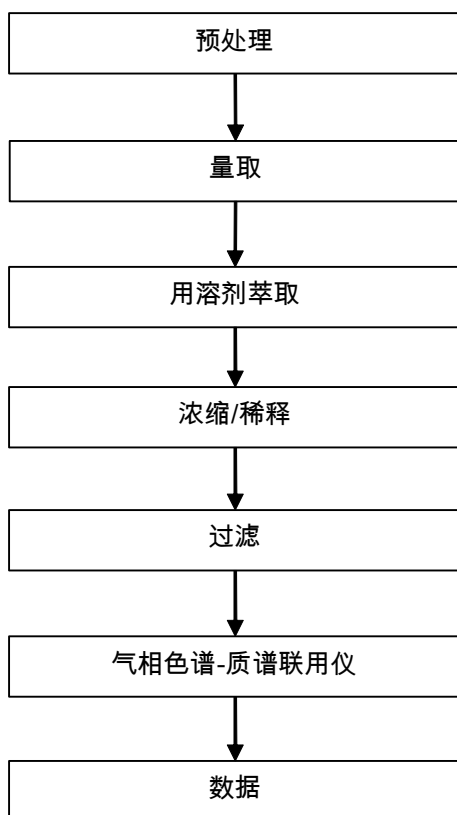
附件

Halogen 测试流程图



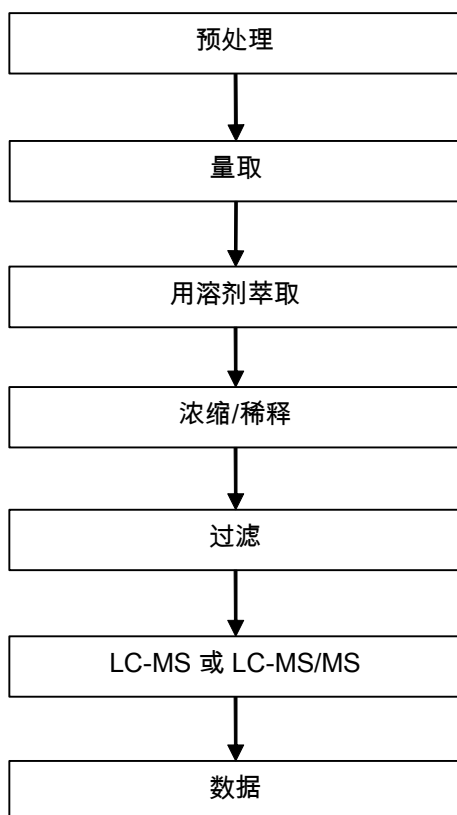
附件

HBCDD 测试流程图



附件

PFOA / PFOS 测试流程图

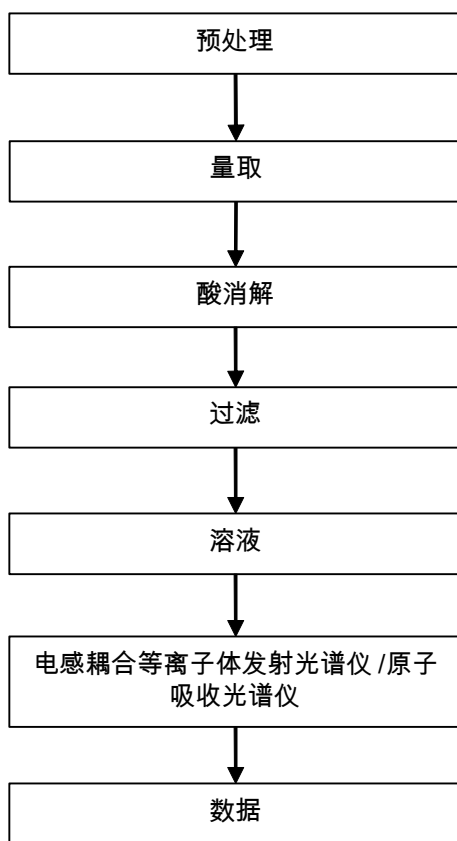


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附件

元素测试流程图

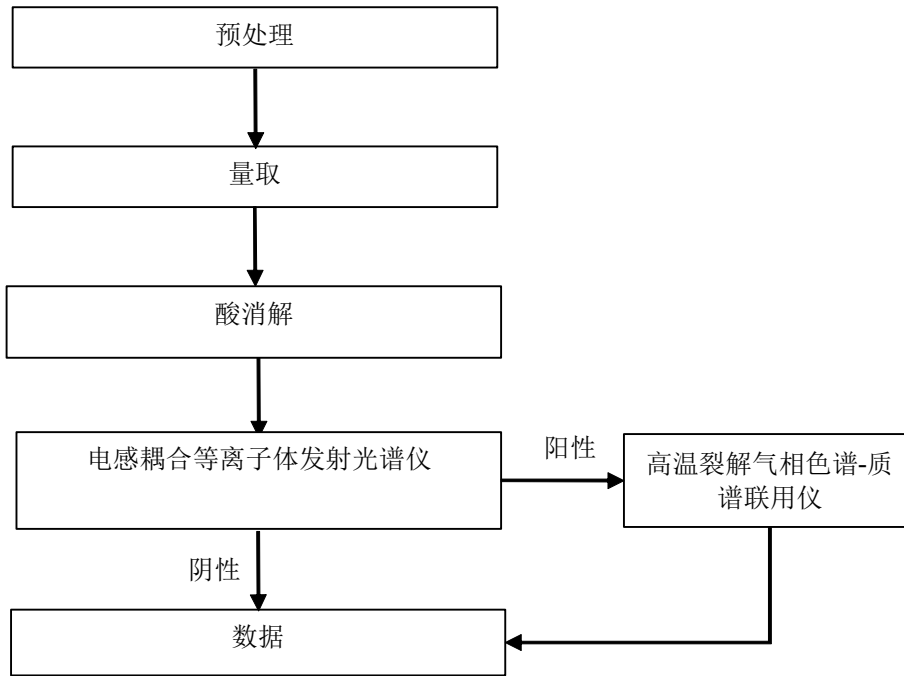


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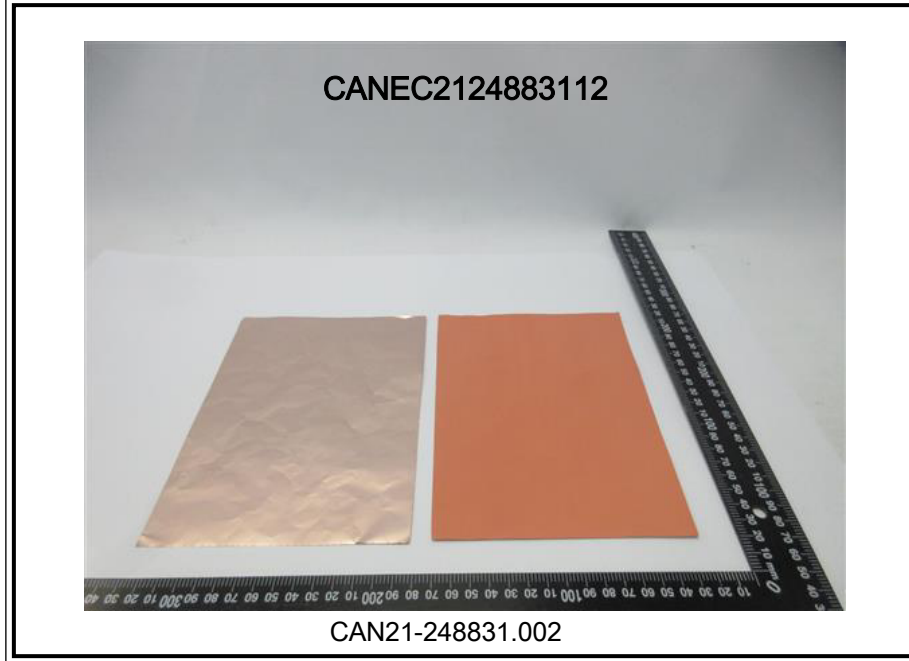
红磷测试流程图



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