

检测报告

编号: CANEC2227162112

日期: 2022年12月26日 第1页,共15页

客户名称: 佛冈建滔实业有限公司
客户地址: 广东省佛冈县石角镇建滔路1号

样品名称: 电解铜箔
型号: MR
以上样品及信息由客户提供。

SGS工作编号: CP22-066579 - GZ
样品接收日期: 2022年12月15日
检测周期: 2022年12月15日 - 2022年12月23日
检测要求: 根据客户要求检测
检测方法: 请参见下一页
检测结果: 请参见下一页

检测结果概要:

| 检测要求 | 结论 |
|--|-------|
| 欧盟RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863- 铅, 汞, 镉, 六价铬, 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 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) | 符合 |
| 卤素 | 见检测结果 |
| 元素分析 | 见检测结果 |
| 红磷 | 见检测结果 |
| 全氟辛酸(PFOA)及其盐 & 全氟辛烷磺酸 (PFOS)及其衍生物 | 见检测结果 |
| 六溴环十二烷(HBCDD) | 见检测结果 |
| 邻苯二甲酸盐 (或酯) | 见检测结果 |

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Coral Qiu 邱蔚珊
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检测报告

编号: CANEC2227162112

日期: 2022年12月26日 第2页,共15页

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检测报告

编号: CANEC2227162112

日期: 2022年12月26日 第3页,共15页

检测结果:

检测样品描述:

| 样品编号 | SGS样品ID | 描述 |
|------|------------------|-------|
| SN1 | CAN22-271621.002 | 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

欧盟RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863-铅, 汞, 镉, 六价铬, 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 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)

检测方法: 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。

| 检测项目 | 限值 | 单位 | MDL | 002 |
|----------------|------|--------------------|------|-----|
| 镉 (Cd) | 100 | mg/kg | 2 | ND |
| 铅 (Pb) | 1000 | mg/kg | 2 | ND |
| 汞 (Hg) | 1000 | mg/kg | 2 | ND |
| 六价铬(Cr(VI))▼ | - | µg/cm ² | 0.10 | ND |
| 多溴联苯之和(PBBs) | 1000 | 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) | 1000 | 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 |



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日期: 2022年12月26日 第4页,共15页

| 检测项目 | 限值 | 单位 | MDL | 002 |
|-----------------------|------|-------|-----|-----|
| 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) | 1000 | mg/kg | 50 | ND |
| 邻苯二甲酸丁苄酯(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
- (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, 样品的六价铬检测结果仅能代表检测时样品含六价铬的状态。

卤素

检测方法: 参考EN 14582:2016, 用 IC分析。

| 检测项目 | 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

检测方法: 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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| 检测项目 | 单位 | MDL | 002 |
|--------|-------|-----|-----|
| 砷 (As) | mg/kg | 10 | ND |
| 锑 (Sb) | mg/kg | 10 | ND |
| 铍 (Be) | mg/kg | 5 | ND |

红磷

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

| 检测项目 | 单位 | MDL | 002 |
|------|-------|-----|-----|
| 红磷 | mg/kg | 500 | ND |

全氟辛酸(PFOA)及其盐 & 全氟辛烷磺酸 (PFOS)及其衍生物

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

| 检测项目 | 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)

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

| 检测项目 | CAS NO. | 单位 | MDL | 002 |
|------|---------|----|-----|-----|
|------|---------|----|-----|-----|



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| 检测项目 | 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 |

邻苯二甲酸盐 (或酯)

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

| 检测项目 | 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:

(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



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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

备注: 本报告中的检测结果和照片引用自报告CANEC2227162107。

除非另有说明, 参照ILAC-G8:09/2019, 使用简单接受 ($w=0$) 的二元判定规则进行符合性判定。

除非另有说明, 此报告结果仅对检测的样品负责。本报告未经本公司书面许可, 不可部分复制。

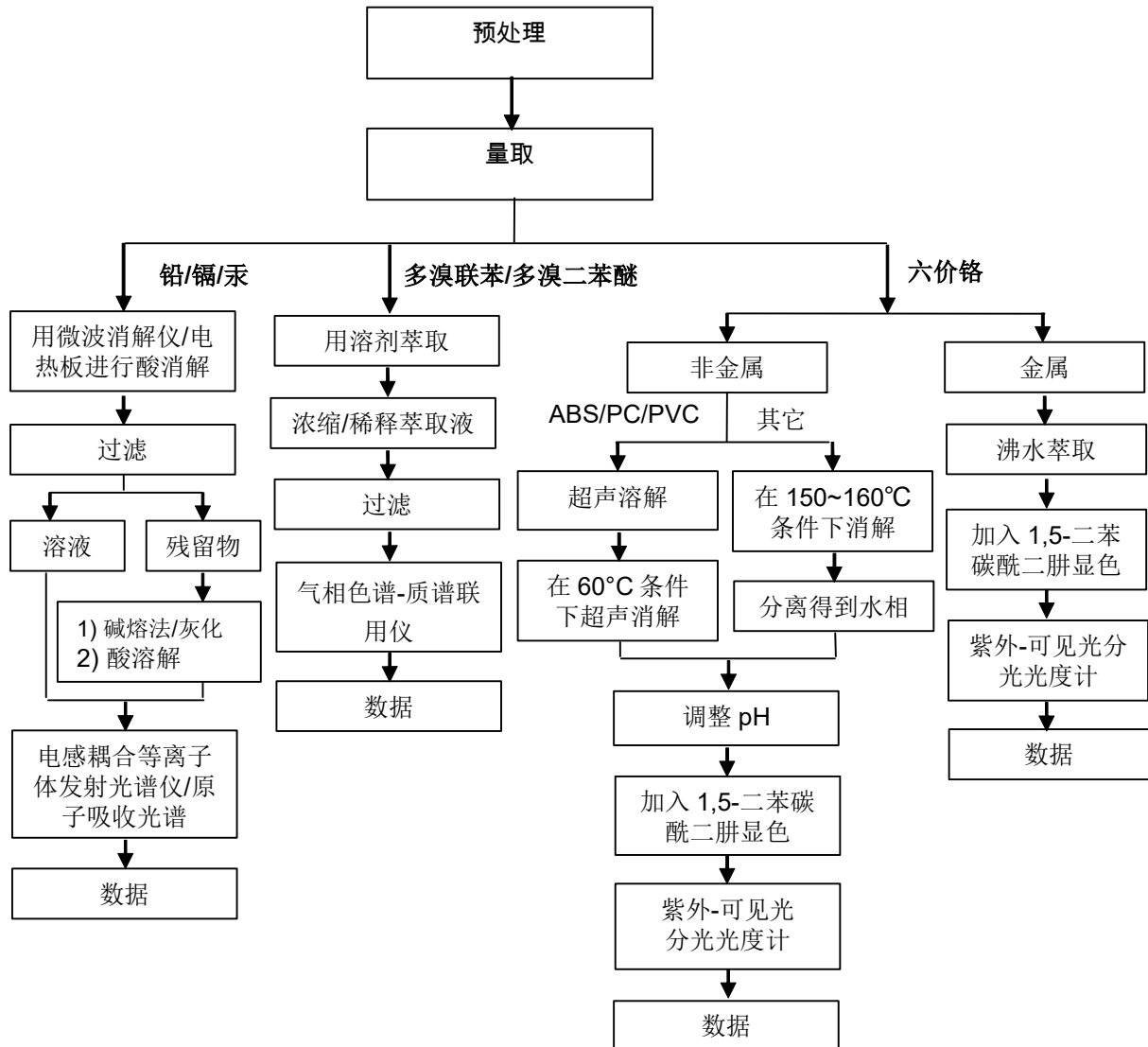
检测报告仅用于客户科研、教学、内部质量控制、产品研发等目的, 仅供内部参考。



附件

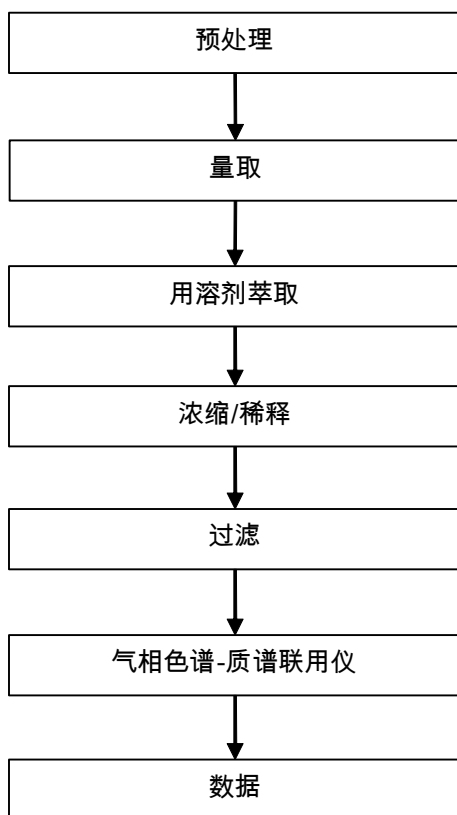
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs 检测流程图

1) 样品按照下述流程被完全消解（六价铬和多溴联苯/多溴二苯醚检测除外）。



附件

Phthalates 检测流程图

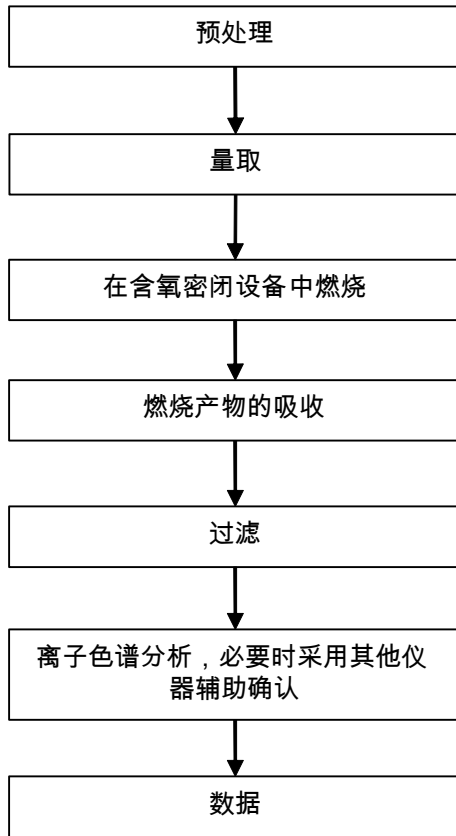


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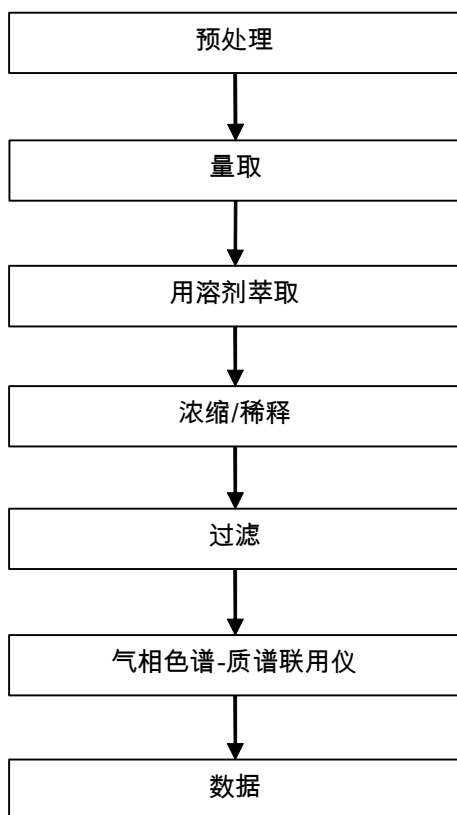
附件

卤素检测流程图



附件

HBCDD 检测流程图

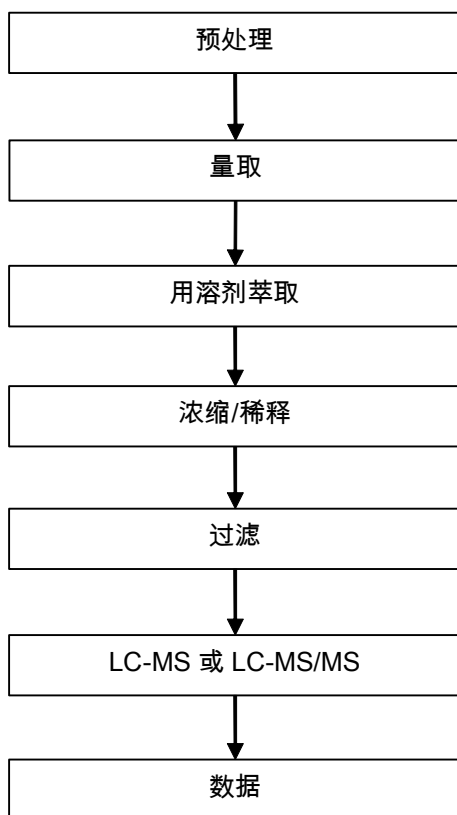


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附件

检测流程图

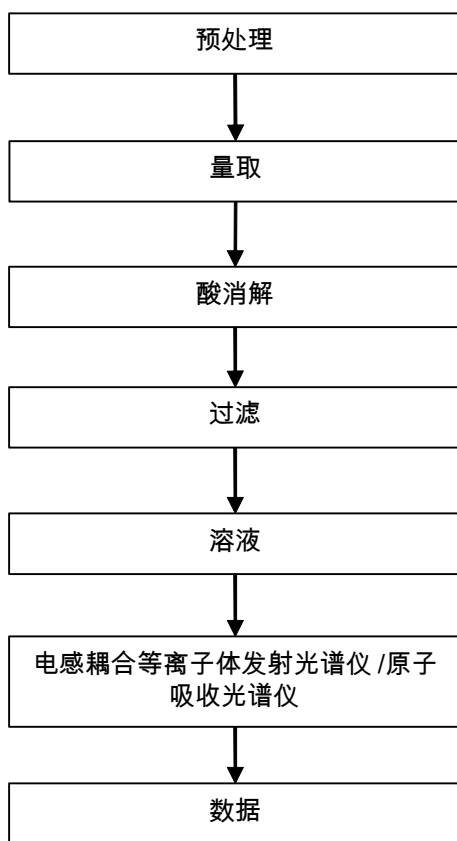


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元素检测流程图

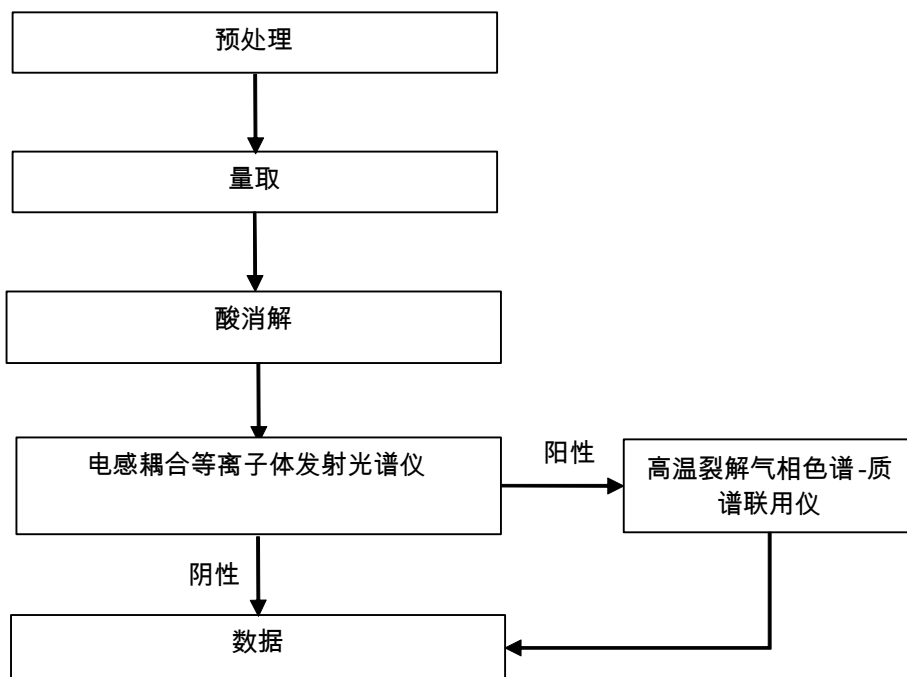


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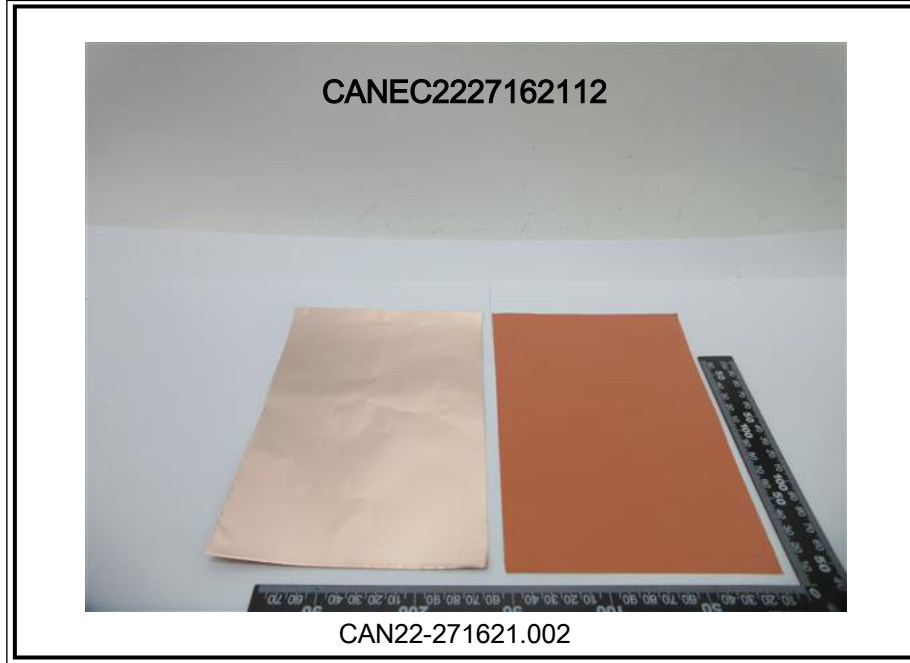
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红磷检测流程图



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