

## 测试报告

No. SHAEC2025745520

日期: 2020年12月29日 第1页,共9页

上海东软载波微电子有限公司

上海市徐汇区龙漕路299号天华信息科技园2号楼A座5楼

以下测试之样品是由申请者所提供及确认: QFN32

SGS工作编号: SP20-040520 - SH  
型号: QFN32  
客户参考信息: QFN32/QFNXXX/ESXXX/HRXXX/HWXXX/BHXXX/FSXXX/HAXXX/HCXXX/HGXXX/HSXXX/SSCXXXX/RDXXX  
样品接收日期: 2020年12月22日  
测试周期: 2020年12月22日 - 2020年12月29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(上海)有限公司  
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Mindy Yu 俞迪  
批准签署人

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SHAEC2025745520



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测试结果:

测试样品描述:

| 样品编号 | SGS样品ID          | 描述             |
|------|------------------|----------------|
| SN1  | SHA20-257455.010 | 黑色固体本体部分(混合测*) |
| SN2  | SHA20-257455.016 | 银色引脚           |

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+AMD1:2017, 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           | 限值   | 单位    | MDL | 010 |
|----------------|------|-------|-----|-----|
| 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))   | 1000 | mg/kg | 8   | 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  |



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日期: 2020年12月29日 第3页,共9页

| 测试项目                  | 限值   | 单位    | MDL | 010 |
|-----------------------|------|-------|-----|-----|
| 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)        | 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) 最大允许限值引用自RoHS指令(EU) 2015/863。

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。

(4) \*样品基于申请人要求为混合测试。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

### 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+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, IEC 62321-6:2015和IEC 62321-8:2017, 采用ICP-OES, AAS, UV-Vis和GC-MS进行分析。

| 测试项目         | 限值   | 单位                 | MDL  | 016 |
|--------------|------|--------------------|------|-----|
| 镉 (Cd)       | 100  | mg/kg              | 2    | ND  |
| 铅(Pb)        | 1000 | mg/kg              | 2    | 6   |
| 汞 (Hg)       | 1000 | mg/kg              | 2    | ND  |
| 六价铬(Cr(VI))▼ | -    | µg/cm <sup>2</sup> | 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  |



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## 测试报告

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日期: 2020年12月29日 第4页,共9页

| 测试项目                  | 限值   | 单位    | MDL | 016 |
|-----------------------|------|-------|-----|-----|
| 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  |
| 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) 最大允许限值引用自RoHS指令(EU) 2015/863。

IEC 62321系列等同于 EN 62321 系列

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(2) ▼ = 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。

除非另有说明, 此报告结果仅对测试的样品负责。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。



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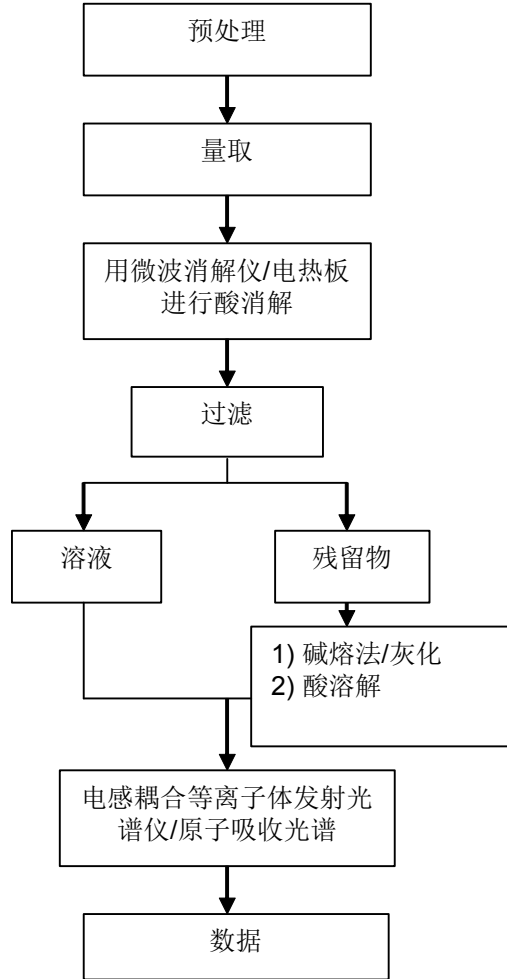
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Testing Center - China (Shanghai) Co., Ltd.

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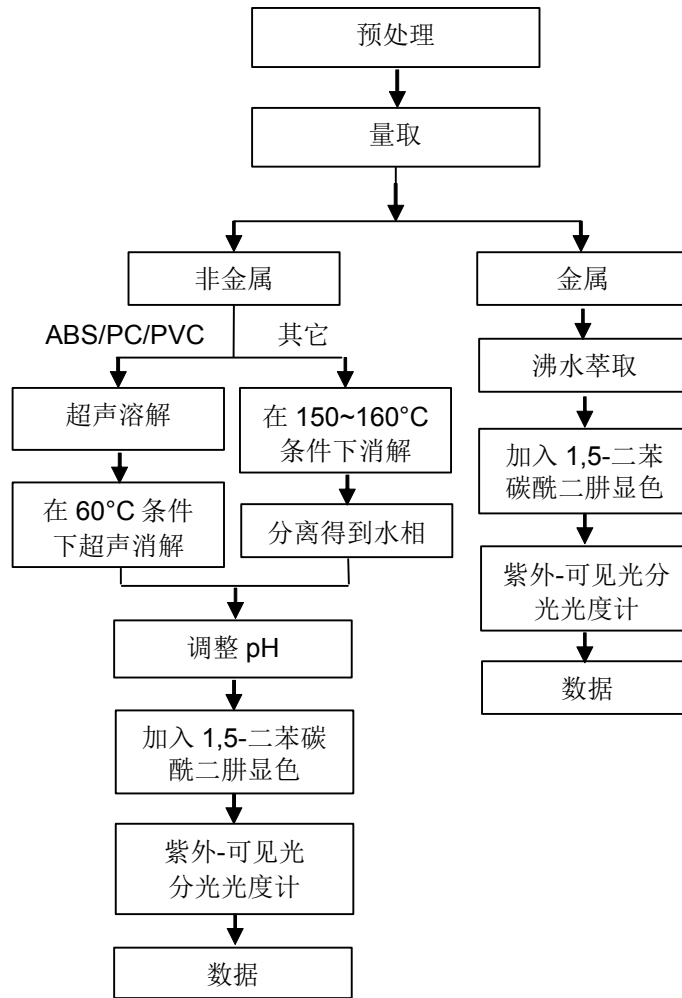
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t HL (86-21) 61402594 f HL (86-21) 61156899 e sgs.china@sgs.com

## 元素(IEC62321) 测试流程图

1)样品按照下述流程被完全消解



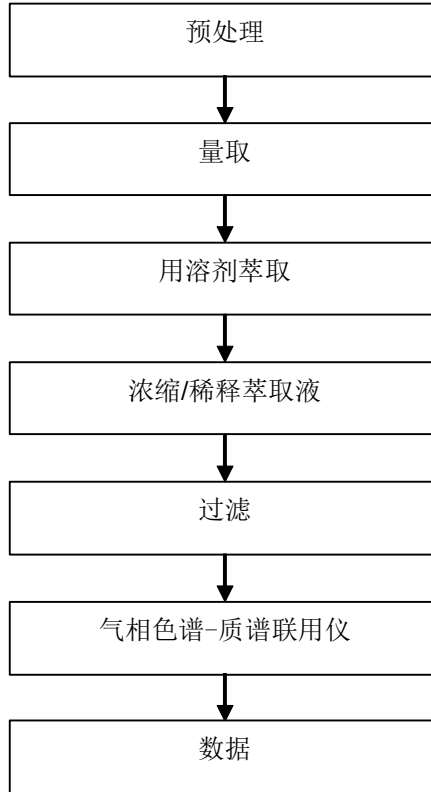
## 六价铬测试流程图



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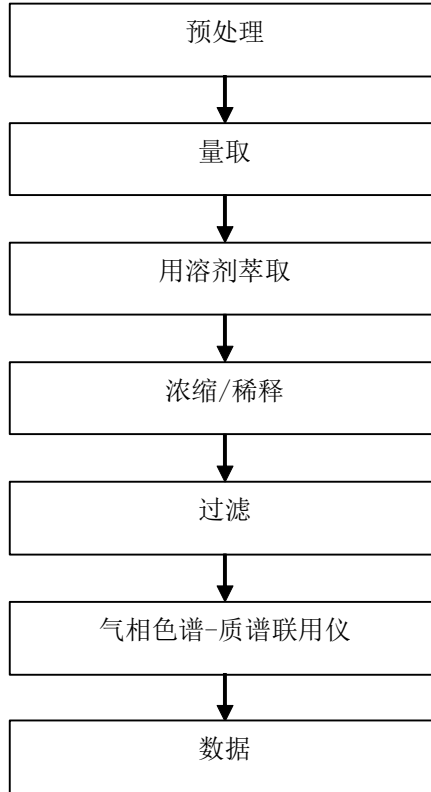
## PBBs/PBDEs 测试流程图



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## Phthalates 测试流程图

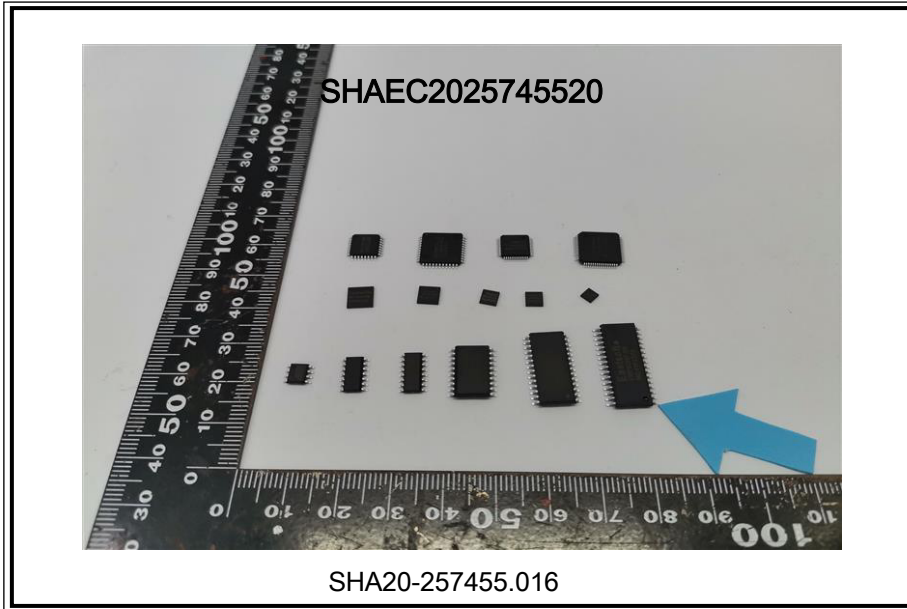
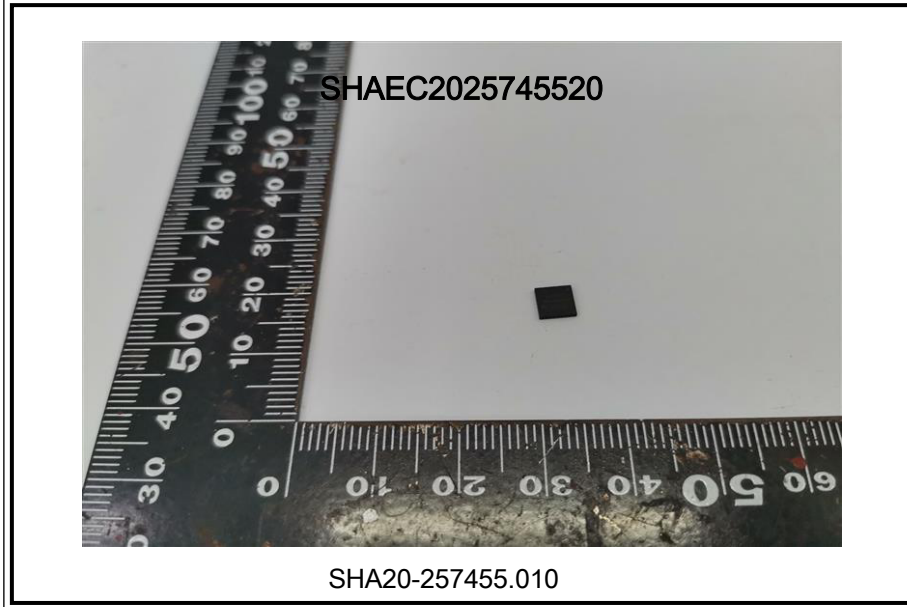


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