



测试报告

报告号: DTI201901257787C

日期: 2019-01-30

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申请单位名称: 深圳市奥宇达电子有限公司

申请单位地址: 深圳市宝安区石岩镇宏发科技园 H3 栋 3 楼

由申请者提供并确认的委托检测样品及对样品的说明如下:

样品名称 : 石英晶振
 样品型号 : 49S(2P、3P)
 系列型号 : M-49SMD(2P、3P)/3*7 (2P) /49SMD(2P、3P)/
 3*8 (2P) /2*6 (2P) /F-11 (4P) /T0-39(3P)
 收样日期 : 2019 年 01 月 25 日
 测试周期 : 2019 年 01 月 25 日至 2019 年 01 月 30 日
 测试结果 : 参见后续页。

测试结果概要:


测试要求

结论

A 根据客户要求, 依据欧盟 RoHS2011/65/EU 指令及其修正指令 2015/863/EU (RoHS 2.0), 测试样品中铅、镉、汞、六价铬、多溴联苯、多溴二苯醚、邻苯二甲酸二-(2-乙基己基) 酯 (DEHP)、邻苯二甲酸丁苯酯(BBP)、邻苯二甲酸二丁酯(DBP)与邻苯二甲酸二异丁酯(DIBP) 的含量。

合格

DTI 授权签名

批准: 
 实验室主任



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测试结果

样品描述:

- (1) 晶振金属外壳
- (2) 内部石英晶体
- (3) 银色金属引脚

A、欧盟 RoHS 指令 2011/65/EU 及其修正指令 2015/863/EU (RoHS 2.0) –测试铅、镉、汞、六价铬、多溴联苯、多溴二苯醚、DEHP, BBP, DBP & DIBP 含量

测试方法

铅、镉和汞含量:

参考 IEC 62321-4:2013 和 IEC62321-5:2013 测试方法, 样品用酸消解, 然后用电感耦合等离子体发射光谱仪(ICP-AES) 进行检测

六价铬含量 (金属材料):

参考 IEC 62321-7-1:2015 测试方法, 用沸水萃取法, 然后用紫外-可见分光光度计 (UV-Vis) 进行检测

六价铬含量 (非金属材料):

参考 IEC 62321-7-2:2017 测试方法, 用碱液提取法, 然后用紫外-可见分光光度计 (UV-Vis) 进行检测

多溴联苯和多溴二苯醚含量:

参考 IEC 62321-6:2015 测试方法, 样品采用有机溶剂萃取, 气相色谱质谱联用仪 (GC-MS) 检测

DEHP, BBP, DBP 和 DIBP 含量:

参考 CPSC-CH-C1001-09.3 测试方法, 样品采用有机溶剂萃取, 气相色谱质谱联用仪 (GC-MS) 检测



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(1) 铅、镉、汞和六价铬测试结果

项目	单位	MDL	测试结果			限量
			(1)	(2)	(3)	
铅含量 (Pb)	mg/kg	2	N.D.	N.D.	N.D.	≤1000
镉含量(Cd)	mg/kg	2	N.D.	N.D.	N.D.	≤100
汞含量(Hg)	mg/kg	2	N.D.	N.D.	N.D.	≤1000
铬含量(Cr (VI)) (金属材料)	µg/cm ²	0.05	阴性	/	阴性	#
铬含量(Cr (VI)) (非金属材料)	mg/kg	2	/	N.D.	/	≤1000
结 论	/	/	合格	合格	合格	/

注释:

- N.D. =未检出或低于检出限
- MDL =方法检出限
- 阴性=样品溶液 Cr(VI)浓度小于 0.10 µg/cm²
- 阳性=样品溶液 Cr(VI)浓度大于 0.13 µg/cm²
- # =
阳性表示在测试区域内存在六价铬, 测试结果不符合欧盟指令 2011/65/EU (RoHS2.0) 法规要求;
阴性表示在测试区域内不存在六价铬, 测试结果符合欧盟指令 2011/65/EU (RoHS2.0) 法规要求
- mg/kg =ppm



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(2) PBBs 和 PBDEs 的测试结果

项目	单位	MDL	测试结果	限量
			(2)	
多溴联苯(PBBs)				
一溴联苯	mg/kg	5	N.D.	/
二溴联苯	mg/kg	5	N.D.	/
三溴联苯	mg/kg	5	N.D.	/
四溴联苯	mg/kg	5	N.D.	/
五溴联苯	mg/kg	5	N.D.	/
六溴联苯	mg/kg	5	N.D.	/
七溴联苯	mg/kg	5	N.D.	/
八溴联苯	mg/kg	5	N.D.	/
九溴联苯	mg/kg	5	N.D.	/
十溴联苯	mg/kg	5	N.D.	/
总含量	mg/kg	/	N.D.	≤1000
多溴二苯醚(PBDEs)(Mon-Deca)				
一溴二苯醚	mg/kg	5	N.D.	/
二溴二苯醚	mg/kg	5	N.D.	/
三溴二苯醚	mg/kg	5	N.D.	/
四溴二苯醚	mg/kg	5	N.D.	/
五溴二苯醚	mg/kg	5	N.D.	/
六溴二苯醚	mg/kg	5	N.D.	/
七溴二苯醚	mg/kg	5	N.D.	/
八溴二苯醚	mg/kg	5	N.D.	/
九溴二苯醚	mg/kg	5	N.D.	/
十溴二苯醚	mg/kg	5	N.D.	/
总含量	mg/kg	/	N.D.	≤1000
结论	/	/	合格	/

注释:

- N.D. = 未检出或低于检出限
- MDL = 方法检出限
- mg/kg = ppm



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(3) 邻苯二甲酸二(2-乙基己基)酯、邻苯二甲酸丁苄酯、邻苯二甲酸二正丁酯和邻苯二甲酸二异丁酯测试结果

项目	单位	MDL	测试结果	限量
			(2)	
邻苯二甲酸二(2-乙基己基)酯 (DEHP)	mg/kg	30	N.D.	≤1000
邻苯二甲酸丁苄酯 (BBP)	mg/kg	30	N.D.	≤1000
邻苯二甲酸二正丁酯 (DBP)	mg/kg	30	N.D.	≤1000
邻苯二甲酸二异丁酯 (DIBP)	mg/kg	30	N.D.	≤1000
结论	/	/	合格	/

注释:

- N.D. = 未检出或低于检出限
- mg/kg = ppm
- MDL = 方法检出限
- 测试流程图见附录。
- 样品照片见附录。



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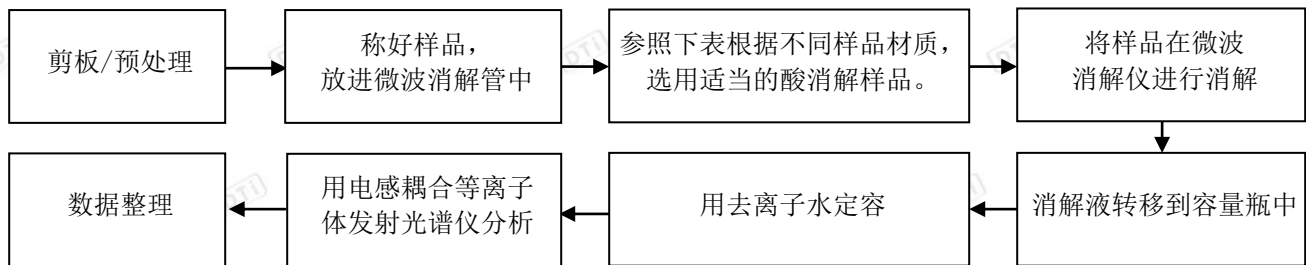
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附录 I

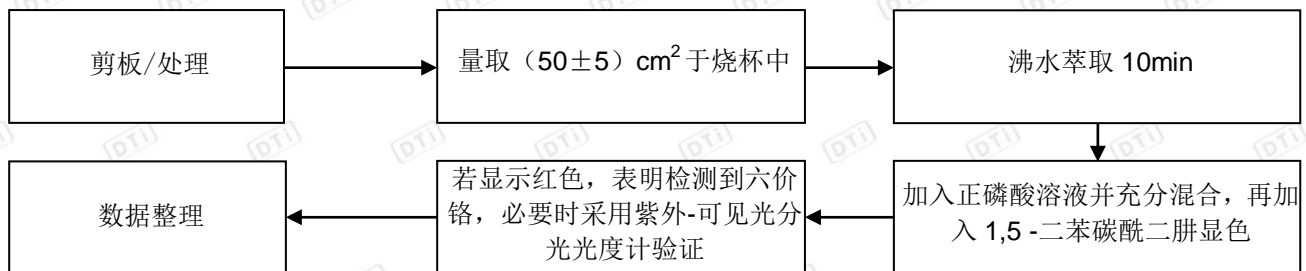
测试流程图

1. 镉/铅/汞测试流程图

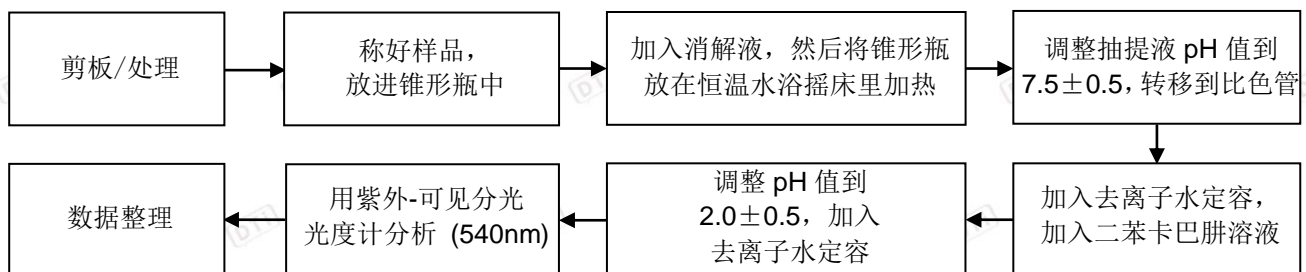
测试样品按照以下流程图的前处理方法完全溶解



2. 六价铬的测试流程图 (金属材料)



3. 六价铬的测试流程图 (非金属材料)





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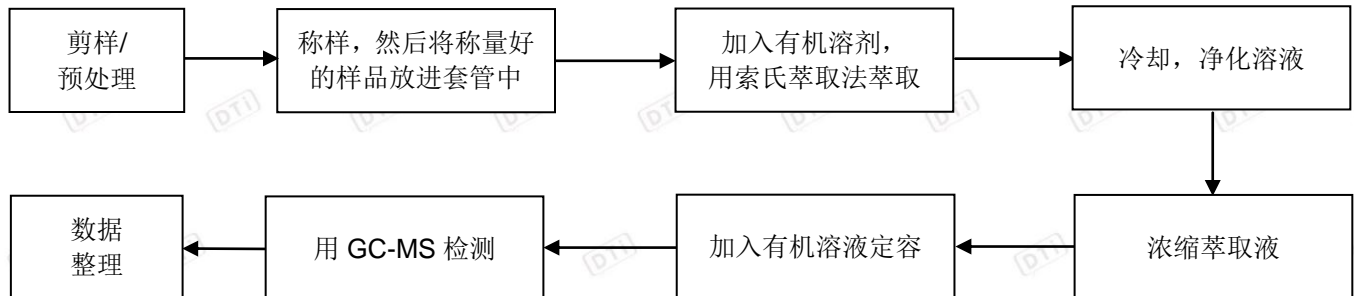
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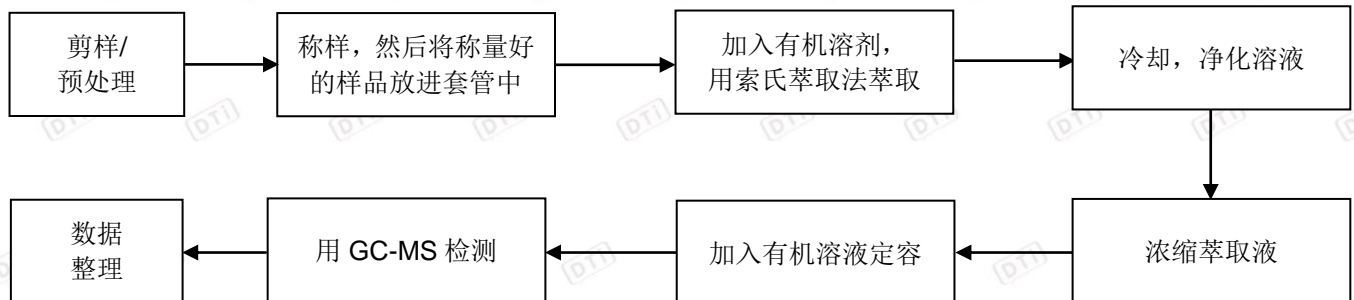
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4. PBBs & PBDEs 的测试流程图



5. DEHP, BBP, DBP & DIBP 的测试流程图



表格:

样品材料类型	消解试剂
钢, 铜, 铝, 焊锡	王水, 氢氟酸, 双氧水
玻璃	氢氟酸
金, 铂, 钯, 陶瓷	王水
银	硝酸
塑料	硫酸, 双氧水, 硝酸, 盐酸
其它	任何消解试剂



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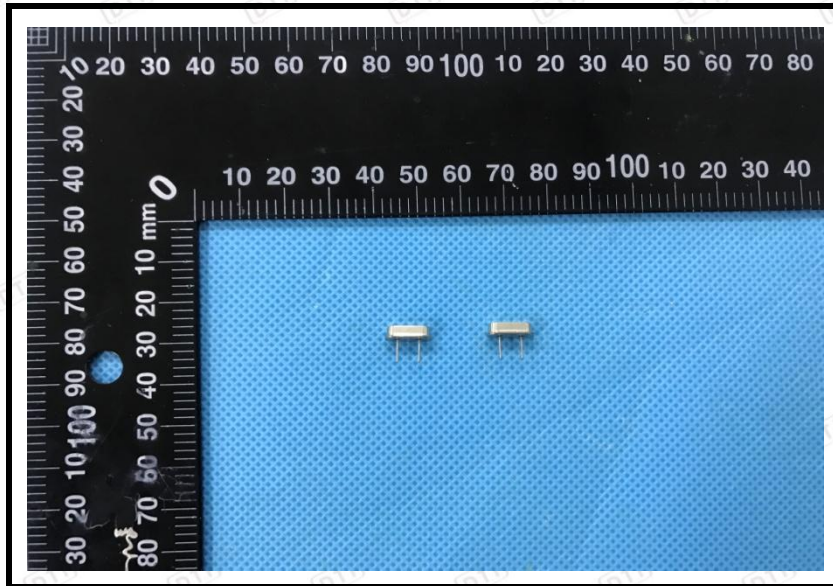
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附录 II

样品照片





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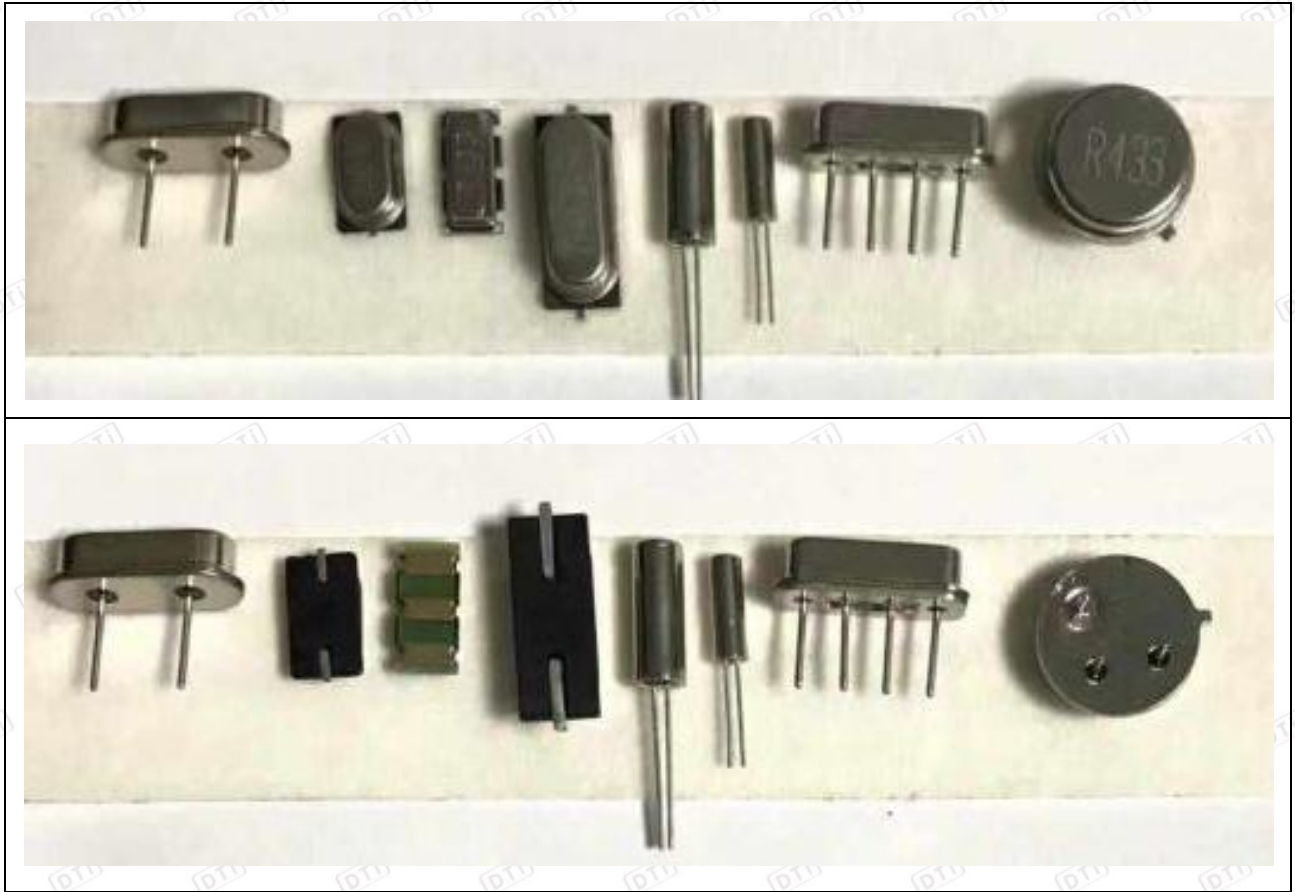


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