

测试报告

No. TSNEC1802325308

日期: 2018年12月21日 第1页,共7页

济南晶恒电子有限责任公司
中国山东省济南市和平路51号

以下测试之样品是由申请者所提供及确认: 无卤二极管

SGS工作编号: TP18-010252 - TJ
型号: DO-15
客户参考信息: 其他型号: ITO-220AB/TO-220AB/TO-220AC/TO-263/TO-252/
ITO-220AC/TO-247/TO-251/TO-262/TO-3P/DB/KBP/KBL/KBPC/D3K/
KBU/GBP/GBU/GBL/GBPC/KBJ/GBJ/MBS/ABS/MBF/DBS/MBM/WOB/
BR/TO-277/UMBF/EMBF/DBF/JBF/SMA/SMB/SMC/SMAFL/SMAF/
SMBF/SMBFL/Mini-MELF/MELF/SOD-123/SOD-123FL/SOD-323/
SOT-23/SOD-123F/SOD-323FL/SOD-523/SOD-923/DFN/R-1/R-3/
R-6/DO-41/A-405/DO-201AD
样品接收日期: 2018年12月14日
测试周期: 2018年12月14日 - 2018年12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

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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	TSN18-023253.004	带有银色金属引脚和灰色印刷的黑色固体(混测)

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

镉, 铅, 汞, 六价铬, PBBs(多溴联苯), PBDEs(多溴二苯醚), 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)

测试方法: 参考IEC 62321-5:2013, IEC 62321-4:2013+AMD1:2017, 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	004
镉(Cd)	100	mg/kg	2	ND
铅(Pb)	-	mg/kg	2	7749▲
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
四溴二苯醚	-	mg/kg	5	ND

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测试项目	限值	单位	MDL	004
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.

IEC 62321系列等同于 EN 62321系列

http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) 2015年6月4号发表在欧盟官方杂志(官方公报)上的RoHS指令(EU) 2015/863附录II限值中还包括邻苯二甲酸酯BBP, DBP, DEHP和DIBP。新的指令限制了电子电器产品的每一个均一材质中邻苯二甲酸酯含量不得超过0.1%。

(3) 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。

(4) DEHP, BBP, DBP 和 DIBP的限制不适用于2019年7月22日前投放市场的电缆及电子电气产品中用于维修、重复利用、功能更新及容量提升的备用配件以及2021年7月22日前投放市场的医疗器械, 包括体外医疗器械, 监控仪表, 包括工业监测和控制仪器。

(5) DEHP、BBP 和 DBP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 和 DBP含量进行了限制。

(6) ▲=根据客户提供的声明, 编号004中的铅(Pb)被欧盟RoHS指令2011/65/EU豁免, 相应豁免条文(请以英文原文为准) |ANNEX III 7(c)-I|: 电子电气元件中玻璃或陶瓷材料(电容中陶瓷介质除外)所含的铅, 如压电设备或玻璃/陶瓷复合元件。

(7) 采用IEC 62321-7-1:2015沸水萃取法核查测试样品004未检出六价铬。



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卤素

测试方法: 参照EN 14582:2016方法测定, 采用IC进行分析.

测试项目	单位	MDL	004
氟(F)	mg/kg	50	ND
氯(Cl)	mg/kg	50	ND
溴(Br)	mg/kg	50	ND
碘(I)	mg/kg	50	ND

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。

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。

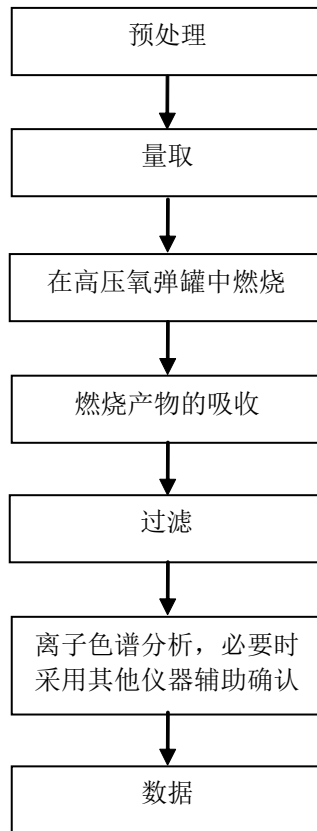


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附件

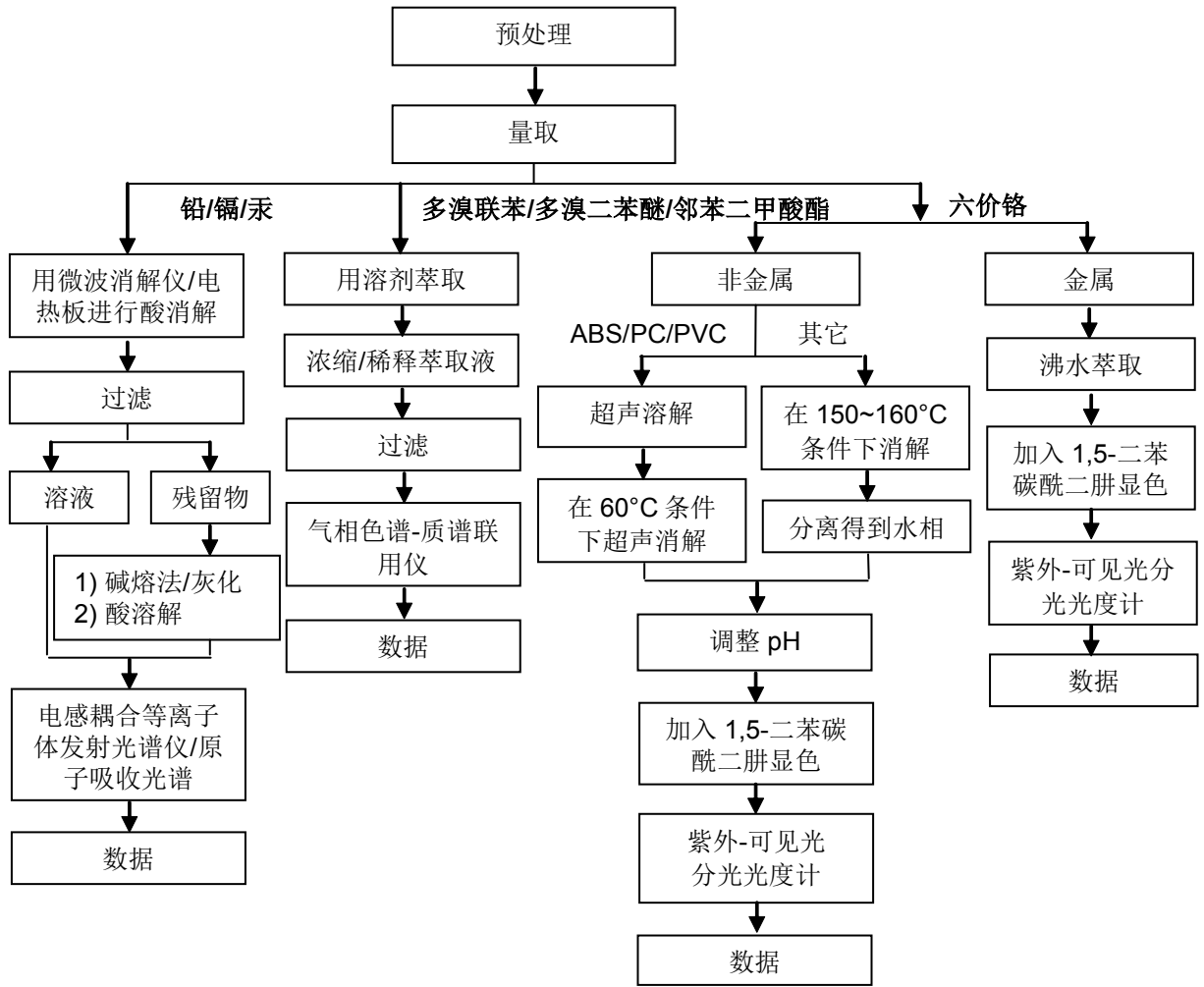
卤素测试流程图



附件

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs/Phthalates 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/邻苯二甲酸酯测试除外）。

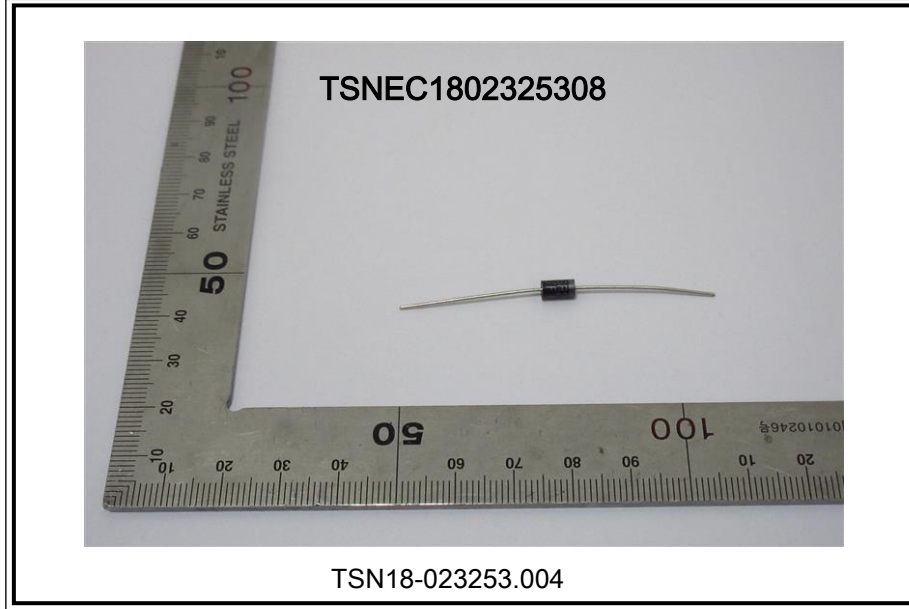


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*** 报告完 ***



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