

检测报告

编号: CANEC24028513012

日期: 2024 年 12 月 27 日

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客户名称: 重庆平伟实业股份有限公司

客户地址: 重庆市梁平区工业园区

样品名称: 半导体器件

型号: TO-263

客户参考信息: 见附件

生产日期: 2024 年 12 月生产

以上样品及信息由客户提供。

SGS 工作编号: CQP24-013620

样品接收时间: 2024 年 12 月 17 日

检测周期: 2024 年 12 月 17 日 ~ 2024 年 12 月 26 日

检测要求: 根据客户要求检测

检测方法: 见后续页。

检测结果: 见后续页。

检测要求	结论
四溴双酚 A (TBBP-A)	见检测结果
欧盟法规(EC) No 1907/2006 REACH 附录 XVII 及其修正法案(EU) No 276/2010 第 20 条- 有机锡化合物	符合
富马酸二甲酯(DMF)	见检测结果
烷基酚聚氧乙烯醚(APEO) 和烷基酚(AP)	见检测结果
石棉	见检测结果
AfPS GS 2019:01 PAK-多环芳香烃 (PAHs)	见检测结果
元素分析	见检测结果

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关正孟

Zm Guan 关正孟

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SGS-CS Standards Technical Services Co., Ltd.
Guangzhou Branch Technical Services Co., Ltd. Chemical Laboratory.

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检测要求	结论
红磷	见检测结果

检测结果:

检测部件外观描述:

样品序号	样品编号	SGS 样品 ID	样品描述
SN1	A2	CAN24-0285130-0001.C002	黑色塑料壳

备注:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL= 方法检出限
- (3) ND = 未检出 (< MDL)
- (4) "-" = 未规定

四溴双酚 A (TBBP-A)

检测方法: 参考 US EPA 3550C: 2007, 采用 GC-MS 或 LC-MS 或 LC-MS/MS 进行分析。

检测项目	CAS No.	单位	MDL	A2
四溴双酚 A(TBBP-A)	79-94-7	mg/kg	5	ND

欧盟法规(EC) No 1907/2006 REACH 附录 XVII 及其修正法案(EU) No 276/2010 第 20 条- 有机锡化合物

检测方法: 参考 ISO 17353:2004, 采用 GC-MS 进行分析。

检测项目	限值	单位	MDL	A2
按 TBT (三丁基锡) 换算回锡的含量	-	%	0.01	ND
按 TPhT (三苯基锡) 换算回锡的含量	-	%	0.01	ND
按 TCyT (三环己基锡) 换算回锡的含量	-	%	0.01	ND
按 TOT (三辛基锡) 换算回锡的含量	-	%	0.01	ND
按 TPT (三丙基锡) 换算回锡的含量	-	%	0.01	ND
按 TMT (三甲基锡) 换算回锡的含量	-	%	0.01	ND
三代有机锡化合物换算锡含量	0.1	%	-	ND
按 DBT (二丁基锡)换算回锡的含量	0.1	%	0.01	ND
按 DOT (二辛基锡) 换算回锡的含量	0.1	%	0.01	ND
结论				符合

富马酸二甲酯(DMF)

检测方法: SGS 内部方法, 采用 GC-MS 进行分析。

检测项目	CAS No.	单位	MDL	A2
富马酸二甲酯 (DMF)	624-49-7	mg/kg	0.1	ND



烷基酚聚氧乙烯醚(APEO)和烷基酚(AP)

检测方法: SGS 内部方法 (GZTC CHEM-TOP-063-01, 参考 EPA 3550C:2007), 采用 GC-MS/LC-MS 进行分析。

检测项目	单位	MDL	A2
壬基酚聚氧乙烯醚(NPEOs)	mg/kg	10	ND
辛基酚聚氧乙烯醚(OPEOs)	mg/kg	10	ND
壬基酚(NP)	mg/kg	3	ND
辛基酚(OP)	mg/kg	3	ND
壬基酚聚氧乙烯醚+辛基酚聚氧乙烯醚	mg/kg	-	ND
总和 (NP,OP,NPEOs,OPEOs)	mg/kg	-	ND
总和 (NP,OP)	mg/kg	-	ND

石棉

检测方法: 参考 NIOSH 9000:2015 / NIOSH 9002:1994, 采用 XRD / PLM 进行分析。

检测项目	CAS No.	单位	MDL	A2
温石棉	12001-29-5 /132207-32-0	%(m/m)	0.1	阴性
铁镁闪石	12172-73-5	%(m/m)	0.1	阴性
兰闪石	12001-28-4	%(m/m)	0.1	阴性
直闪石	77536-67-5	%(m/m)	0.1	阴性
透闪石	77536-68-6	%(m/m)	0.1	阴性
阳起石	77536-66-4	%(m/m)	0.1	阴性

备注:

(1) 阴性=未检出石棉, 阳性=检出石棉

AfPS GS 2019:01 PAK-多环芳香烃 (PAHs)

检测方法: 参考 AfPS GS 2019:01 PAK, 采用 GC-MS 进行分析。

检测项目	CAS No.	单位	MDL	A2
苯并(a)芘 (BaP)	50-32-8	mg/kg	0.1	ND
苯并(e)芘 (BeP)	192-97-2	mg/kg	0.1	ND
苯并(a)蒽 (BaA)	56-55-3	mg/kg	0.1	ND
苯并(b)荧蒽 (BbF)	205-99-2	mg/kg	0.1	ND
苯并(j)荧蒽 (BjF)	205-82-3	mg/kg	0.1	ND
苯并(k)荧蒽 (BkF)	207-08-9	mg/kg	0.1	ND
蒽 (CHR)	218-01-9	mg/kg	0.1	ND
二苯并(a,h)蒽 (DBA)	53-70-3	mg/kg	0.1	ND
苯并(g,h,i)苝(二苯并苯) (BPE)	191-24-2	mg/kg	0.1	ND



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检测项目	CAS No.	单位	MDL	A2
茚苯(1,2,3-c,d)芘 (IPY)	193-39-5	mg/kg	0.1	ND
菲 (PHE)	85-01-8	mg/kg	0.1	ND
芘 (PYR)	129-00-0	mg/kg	0.1	ND
蒽 (ANT)	120-12-7	mg/kg	0.1	ND
荧蒽 (FLT)	206-44-0	mg/kg	0.1	ND
4 项多环芳香烃总和[菲 (PHE), 芘 (PYR), 蒽 (ANT), 荧蒽 (FLT)]	-	mg/kg	-	ND
萘 (NAP)	91-20-3	mg/kg	0.1	ND
15 项多环芳香烃总和	-	mg/kg	-	ND
材料分类	-	-	-	-

备注:

AIPS(德国产品安全委员会): 认证对多环芳香烃的要求

参数 单位: mg/kg	1 类	2 类		3 类	
	设计意图为放入口中的材料, 或与皮肤长期接触 (超过 30 秒) 的材料用于 -2009/48/EC 定义的玩具, 或 -供 3 岁以下儿童 a,b 使用。	不属于第 1 类, 设计意图或可预见 ^d 与皮肤长期接触 (超过 30 秒) 或短期重复接触 ^e 的材料		不属于第 1 和 2 类, 设计意图或可预见与皮肤短期接触 (不超过 30 秒) 材料	
		a. 供儿童使用的产品	b. 其他产品	a. 供儿童使用的产品	b. 其他产品
苯并(a)芘 (BaP)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(e)芘 (BeP)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(a)蒽 (BaA)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(b)荧蒽 (BbF)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(j)荧蒽 (BjF)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(k)荧蒽 (BkF)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
蒽 (CHR), mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
二苯并(a,h)蒽 (DBA)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(g,h,i)芘(二萘嵌苯) (BPE)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
茚苯(1,2,3-c,d)芘 (IPY)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
菲 (PHE), 芘 (PYR), 蒽 (ANT), 荧蒽 (FLT)	< 1 (总和)	< 5 (总和)	< 10 (总和)	< 20 (总和)	< 50 (总和)
萘 (NAP)	< 1	< 2		< 10	
15 PAH 之和	< 1	< 5	< 10	< 20	< 50

注释:

- a 儿童是指法定年龄未满 14 周岁的人。
- b 供儿童使用包括儿童的主动接触或被动接触。



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检测报告

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“短期重复接触”的定义摘自 REACH 附录 XVII 第 50 条修正案 (EC) No. 1272/2013)。

根据德国产品安全法 (ProdSG) (第一章第 2 条第 28 款) 的定义, “可预见的使用”是指将产品投放市场的人无意但可以合理预见的方式使用产品。

备注:

德国产品安全委员会 (AfPS) 于 2020 年 4 月 10 日发布了关于多环芳香烃 (PAHs) 的新文件 (AfPS GS 2019:01 PAK), 该文件将于 2020 年 7 月 1 日起用于 GS-MARK 认证。

元素分析

检测方法: 参考 US EPA 3052:1996, 采用 ICP-OES/AAS 进行分析。

检测项目	单位	MDL	A2
铍(Be)	mg/kg	5	ND
锑(Sb)	mg/kg	10	ND
三氧化二锑(Sb ₂ O ₃) ◆	mg/kg	12	ND

备注:

◆三氧化二锑结果由锑含量换算得到

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	CAS No.	单位	MDL	A2
红磷	7723-14-0	mg/kg	500	ND

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。



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Guangzhou Branch, Inspection & Testing Services

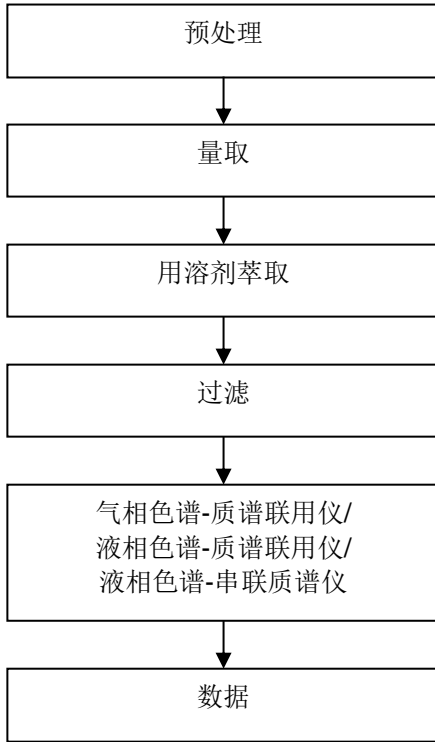
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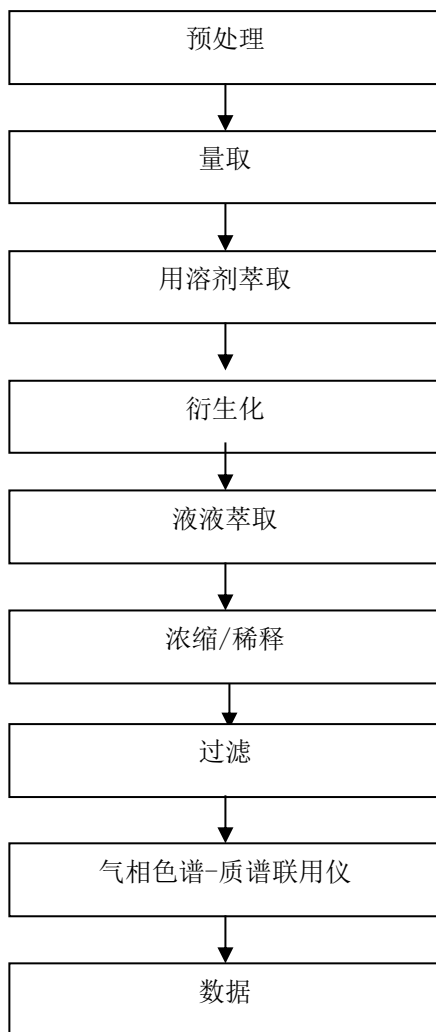
TBBP-A 检测流程图



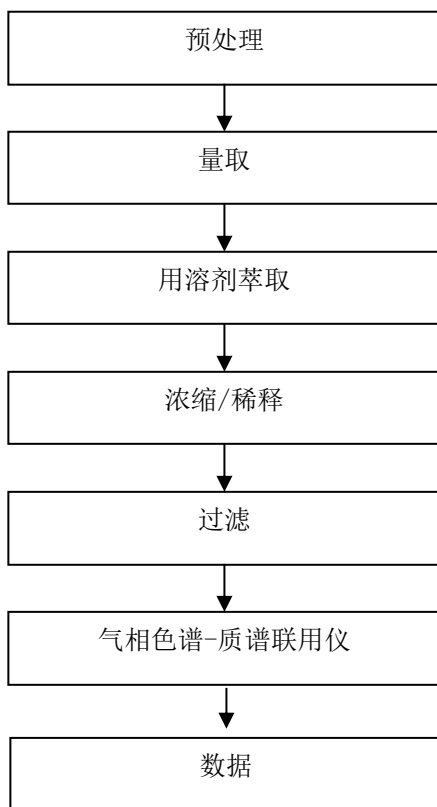
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有机锡检测流程图

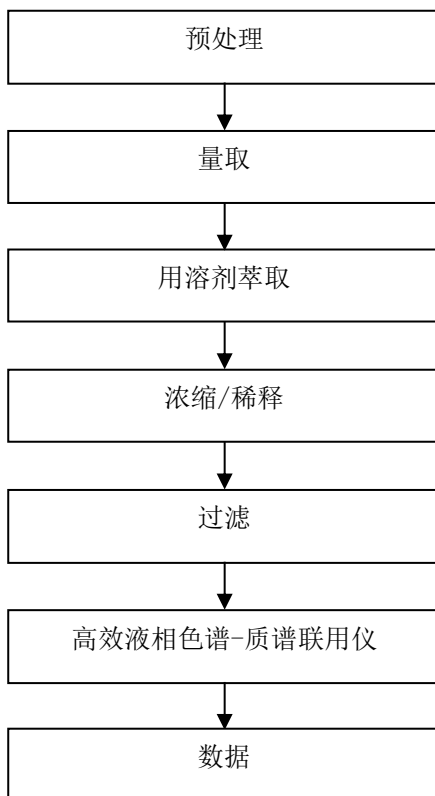


DMF(富马酸二甲酯)检测流程图

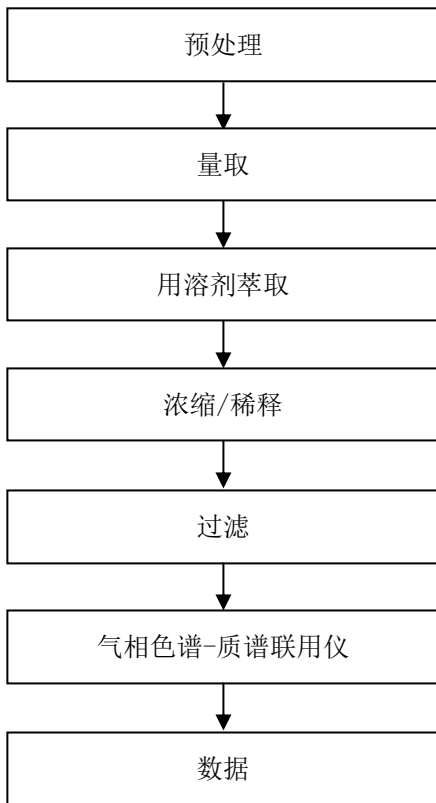


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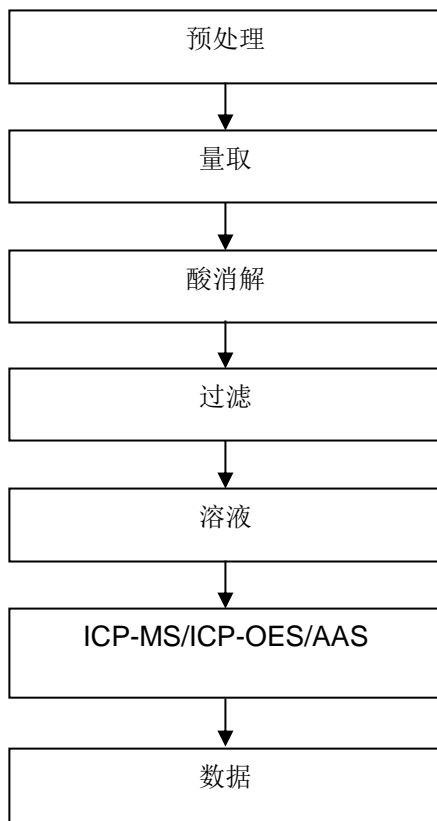
NP / OP / NPEOs / OPEOs 检测流程图



PAHs 检测流程图

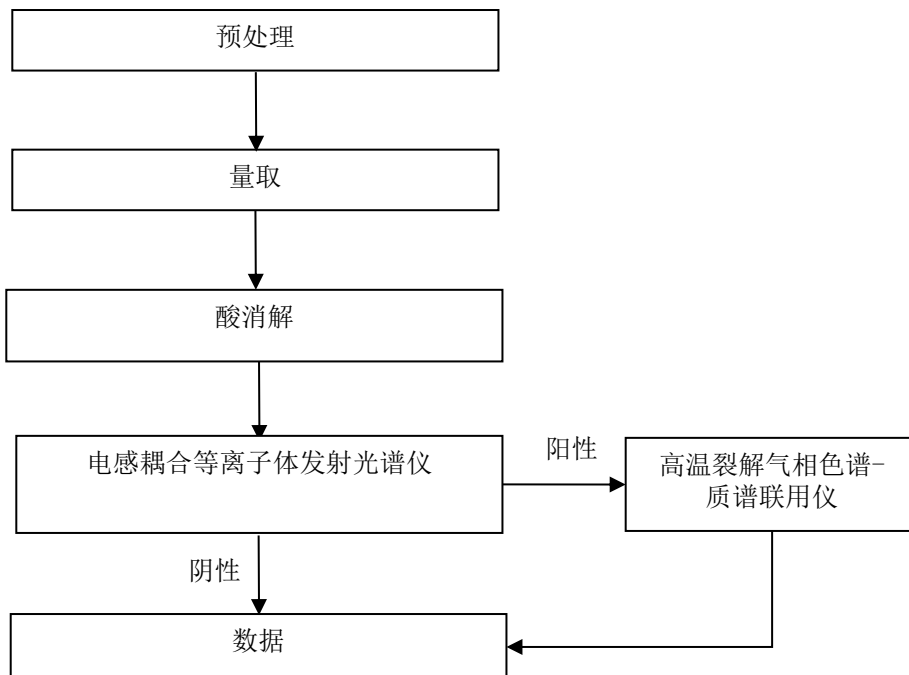


元素检测流程图



附件

红磷检测流程图



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附件:

Rectifier Bridge, Mosfet, Photovoltaic module, SOD-923, SOD-723,
SC-89, SOT-416, SOT-23, SOT-323, SOT-252, SOT-223, A-405, DO-41
(DO-204AL), DO-15(DO-204AC), DO-27 (DO-201AD), DO-27 (DO-201AE),
HVM, HV, R-1, R-3, R-6, TO-220AC/AB, WOB, RB-1, MBS, BR-15,
RC-2, BRW, DB, DBS, GBJ, GBL, GBP, GBU, KBPC, KBP, KBU,
KBL, MB, MM, RS, SMA(DO-214AC), SMB(DO-214AA), SMC(DO-214AB),
SMF, PS-277, PS-277A, PS-277B, SOT-123, SOT-523, SOD-123,
SOD-323, SOD-523, TO-92, TO-126, SOD-126, ABS, KBJ, LL-34, DO-35,
DO-41, LL-41, SOD-123FL, TBF, TO-251, TO-252, TO-262, TO-263,
ABM, MBF, SMBF, D3K, SMFL, TMBF, SOD-123HE, SOP-8, ABF,
TO-220CB, TO-220MF, TO-247, DFN, SMFT, TO-220FS, TO-262CB,
TO-263CB, SOD-123FT, TO-277, HGBU, HGBJ, RTMBF, TBM, DO-218AB,
TO-3P, TOLL-1, TOLL-2, SOT-563, TO-220TF, TO-220NF, TO-220AD,
TO-263-7L, TO-263-7H, DFN5*6Clip, DFN1006-2L, DFN1006-3L, DFN2*2-6L,
PDFN5*6-8L, SMD-0.1 两脚, SMD-0.5 场效应管, SOT-23-3L, SOT-23-6L,
SOT-363, SOT-89-3L, TO-252-2L, TO-258A, TO-247SM, BW88, XND38,
TO-3PF, TOLL, STOLL, KBJL, GBJL, TCOP10, TO-227, TOLT, QDPAK,
TO-220DF-3L, TO-220AD-2L, SOP-32, TO-220AB-3L, TO-220AC
(TO-220AB-2L), TO-220CB-3L, ITO-220AB (TO-220F-3L), ITO-220AC
(TO-220F-2L), TO-251-3L, TO-252-2L, TO-263-2L, TO-262-3L, TO-220MF-3L,
TO-251K-3L, TO-220SF, TO-263CB-2L, TO-220NF-3L, TO-220TF-3L,
TO-247-2L, TO-247-3L, TO-247-4L, DFN5*6, TO-263FB-3L, TO-220MF-2L,
TO-263AD-2L, TO-263-5L, TO-220DF, PDFN3*3-C, TO-220FCB-3L,
TO-220RB-3L, TO-220DF, TO-220SD, TO-251K, TO-263FB, TO-220AD、
SOP-8, SOD-123, SOD-323, SOD-523, SOD-323F, SOT-23, SOT-23-3L,
SOT-23-6L, SOT-323, SOT-563, DFN3*3, DFN8*8, DFN1006-2L, DFN1006-3L,
DFN5*6, SOD-323GW, SOT-523, SOT-723, SOT-89, SOT-223, SOT-363,
DFN2*2-6L, DPDFN3*3, SOT-89-3L, SOP-32L, 0603



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