

检测报告

编号: SHAEC25003101104

日期: 2025年02月25日

第1页, 共9页

客户名称: 上海永铭电子股份有限公司
 客户地址: 上海市奉贤区南桥镇杨王工业区光村路258号

样品名称: 固液混合铝电解电容
 型号: VHT
 客户参考信息: VHT,VGY,VHM,VHR,VHU,VHX,VHT,NGY,NHM,NHR,NHU,NHX,VHE,NHE
 批号: 20250217001
 以上样品及信息由客户提供。

SGS 工作编号: TIC1020250218181723KZEK

样品接收时间: 2025年02月19日
 检测周期: 2025年02月19日 ~ 2025年02月25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
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 (PBB)、多溴二苯醚 (PBDE)、邻苯二甲酸二(2-乙基己基)酯 (DEHP)、邻苯二甲酸丁苄酯 (BBP)、邻苯二甲酸二丁酯 (DBP) 和邻苯二甲酸二异丁酯 (DIBP)	符合
卤素	见检测结果
美国环保署有毒物质控制法 (TSCA) 第 6 (h) 节规定的持久性、生物累积性和毒性 (PBT) 化学物质	符合

通标标准技术服务（上海）有限公司
 授权签名

Carol Luo 罗萍
 批准签署人

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第2页, 共9页

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	SHA25-0031011-0001.C002	银色电子元件

备注:

- (1) $1 \text{ mg/kg} = 1 \text{ ppm} = 0.0001\%$
- (2) MDL= 方法检出限
- (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 (PBB)、多溴二苯醚 (PBDE)、邻苯二甲酸二(2-乙基己基)酯 (DEHP)、邻苯二甲酸丁苄酯 (BBP)、邻苯二甲酸二丁酯 (DBP) 和邻苯二甲酸二异丁酯 (DIBP)

检测方法: 参考 IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 和 IEC 62321-12:2023, 采用 ICP-OES/AAS, UV-Vis 和 GC-MS 进行分析。

检测项目	限值	单位	MDL	A2
铅 (Pb)	1000	mg/kg	2	ND
汞 (Hg)	1000	mg/kg	2	ND
镉 (Cd)	100	mg/kg	2	ND
六价铬 (Cr(VI))	1000	mg/kg	8	ND
多溴联苯之和 (PBB)	1000	mg/kg	-	ND
一溴联苯 (MonoBB)	-	mg/kg	25	ND
二溴联苯 (DiBB)	-	mg/kg	25	ND
三溴联苯 (TriBB)	-	mg/kg	25	ND
四溴联苯 (TetraBB)	-	mg/kg	25	ND
五溴联苯 (PentaBB)	-	mg/kg	25	ND
六溴联苯 (HexaBB)	-	mg/kg	25	ND
七溴联苯 (HeptaBB)	-	mg/kg	25	ND
八溴联苯 (OctaBB)	-	mg/kg	25	ND
九溴联苯 (NonaBB)	-	mg/kg	25	ND
十溴联苯 (DecaBB)	-	mg/kg	25	ND
多溴二苯醚之和 (PBDE)	1000	mg/kg	-	ND
一溴二苯醚 (MonoBDE)	-	mg/kg	25	ND
二溴二苯醚 (DiBDE)	-	mg/kg	25	ND
三溴二苯醚 (TriBDE)	-	mg/kg	25	ND
四溴二苯醚 (TetraBDE)	-	mg/kg	25	ND
五溴二苯醚 (PentaBDE)	-	mg/kg	25	ND
六溴二苯醚 (HexaBDE)	-	mg/kg	25	ND
七溴二苯醚 (HeptaBDE)	-	mg/kg	25	ND
八溴二苯醚 (OctaBDE)	-	mg/kg	25	ND

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第3页, 共9页

检测项目	限值	单位	MDL	A2
九溴二苯醚 (NonaBDE)	-	mg/kg	25	ND
十溴二苯醚 (DecaBDE)	-	mg/kg	25	ND
邻苯二甲酸二(2-乙基己基)酯 (DEHP)	1000	mg/kg	50	ND
邻苯二甲酸丁苄酯 (BBP)	1000	mg/kg	50	ND
邻苯二甲酸二丁酯 (DBP)	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) 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。

卤素

检测方法: 参考 EN 14582:2016, 采用 IC 进行分析。

检测项目	单位	MDL	A2
氟 (F)	mg/kg	20	50
氯 (Cl)	mg/kg	50	ND
溴 (Br)	mg/kg	50	ND
碘 (I)	mg/kg	50	ND

美国环保署有毒物质控制法 (TSCA) 第 6 (h) 节规定的持久性、生物累积性和毒性 (PBT) 化学物质

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

检测项目	CAS No.	限值	单位	MDL	A2
十溴二苯醚 (Deca-BDE)	1163-19-5	1000	mg/kg	5	ND
异丙基化磷酸三苯酯 (PIP 3:1)	68937-41-7	1000	mg/kg	5	ND
2,4,6-三叔丁基苯酚 (2,4,6-TTBP)	732-26-3	3000	mg/kg	5	ND
六氯丁二烯 (HCBD)	87-68-3	禁用	mg/kg	5	ND
五氯苯硫酚 (PCTP)	133-49-3	10000	mg/kg	5	ND
结论					符合

备注:

- (1) 法规信息请参见下链接
<https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/persistent-bioaccumulative-and-toxic-pbt-chemicals-under>.
- (2) 针对十溴二苯醚 (Deca-BDE) 和异丙基化磷酸三苯酯 (PIP 3:1) 的规定于 2025 年 1 月 21 日生效。
 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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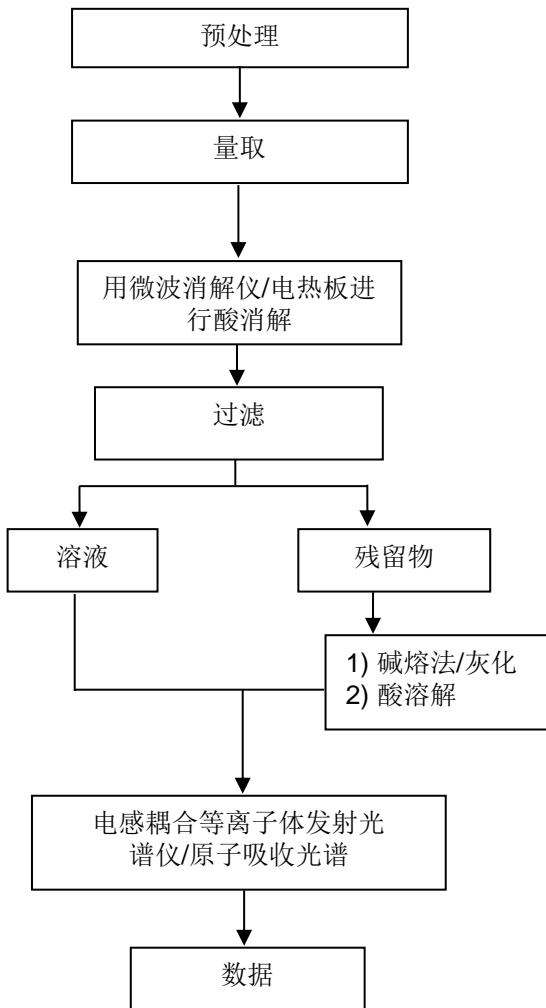
日期: 2025 年 02 月 25 日

第 4 页, 共 9 页

附件

元素检测流程图

样品按照下述流程被完全消解



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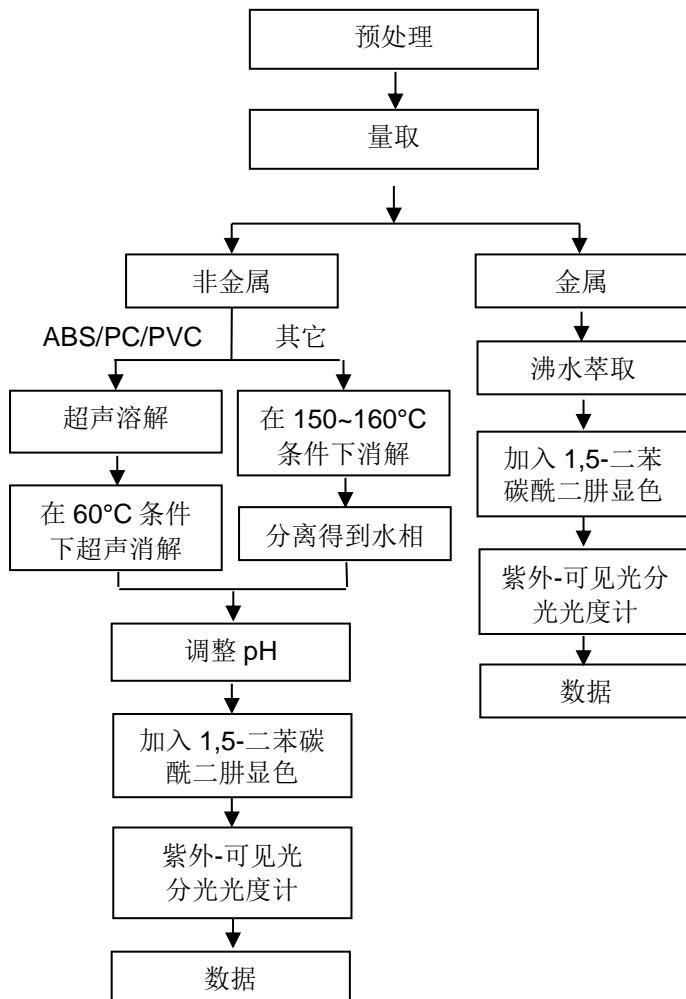
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第 5 页, 共 9 页

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六价铬检测流程图



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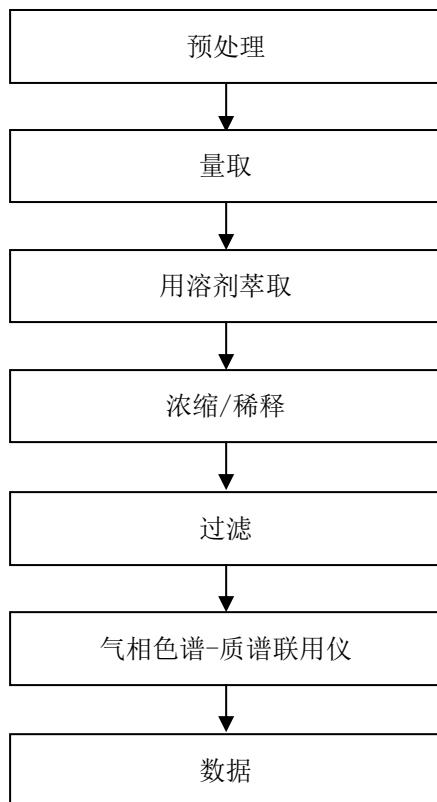
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第 6 页, 共 9 页

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PBB/PBDE/Phthalates 检测流程图



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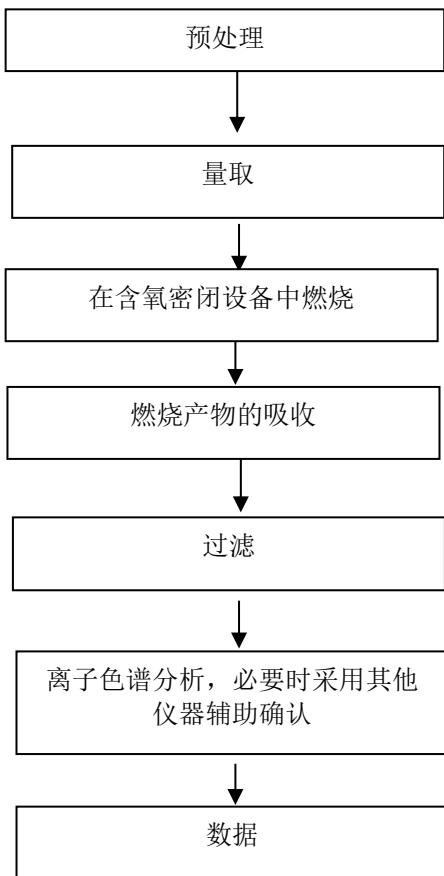
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日期: 2025 年 02 月 25 日

第 7 页, 共 9 页

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卤素检测流程图



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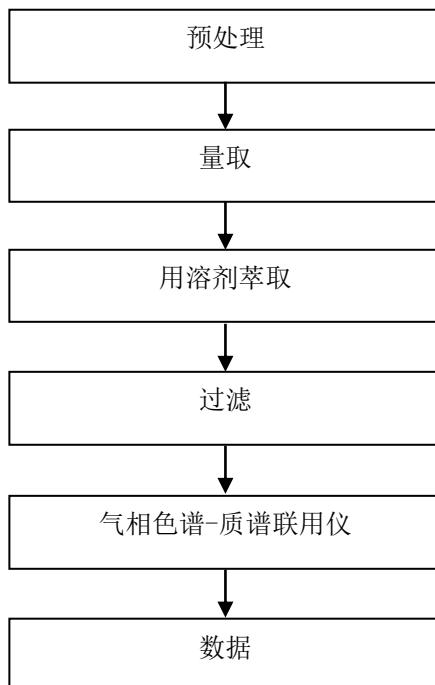
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日期: 2025年02月25日

第8页, 共9页

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持久性、生物累积性和毒性 (PBT) 化学物质检测流程图



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第 9 页, 共 9 页

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