



中国认可
国际互认
检测
TESTING
CNAS L6478



检测报告

TEST REPORT

报告编号/ Report No..... : WTH23F12256669C

委托方/ Applicant..... : 肇庆市立得电子有限公司
LEDTECH ELECTRONICS CORPORATION

地址/ Address..... : 广东省肇庆市端州区璜西路西、桂园路北（22区）
(Zone 22) Guiyuan Rd. North, Jixi Rd. West, Duanzhou
District, Zhaoqing City, Guangdong Province, China

样品名称/ Sample Name..... : LED DISPLAY

检测要求/ Test Requested..... : 根据客户要求，测试送检样品中欧盟RoHS指令2011/65/EU及其修订指令(EU) No.2015/863要求的10种限制物质含量
As specified by client, to determine the 10 restricted substances content of EU RoHS Directive 2011/65/EU and its amendment (EU) No.2015/863 in the submitted sample.

检测结论/ Test Conclusion..... : 符合（详情请参见下一页）
Pass (Please refer to next pages for details)

样品接收日期/ Date of Receipt sample..... : 2023-12-01

检测周期/ Testing period..... : 2023-12-01 ~ 2023-12-06

报告日期/ Date of Issue..... : 2023-12-06

检测结果/ Test Result..... : 参见报告下页/ Refer to next page (s)

报告制作/ Prepared By:

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授权签字人

Signed for and on behalf of

Waltek Testing Group (Foshan) Co., Ltd.

梁志聪/ Swing.Liang

佛山市沃特测试技术服务有限公司/ Waltek Testing Group (Foshan) Co., Ltd.

<http://www.waltek.com.cn>

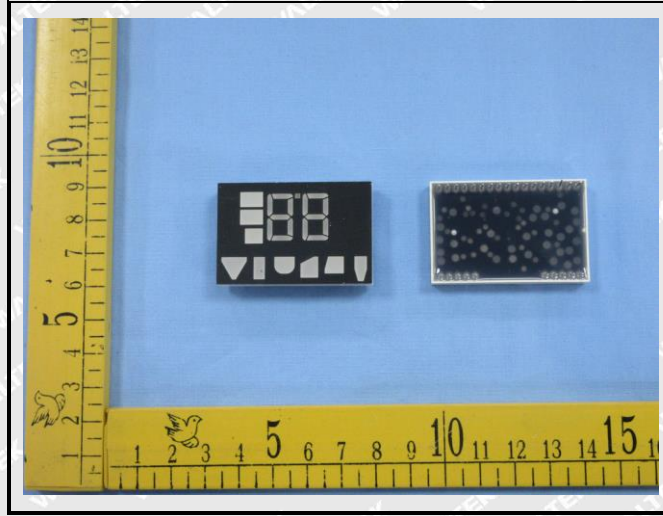
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WT-510-201-16-A



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样品图片 / Sample Photo:



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测试结果/ Test Results:

测试方法/ Test Method:

- 参考IEC62321-5: 2013, 使用ICP-OES检测铅、镉含量;
- 参考IEC62321-4:2013+AMD1:2017 CSV, 使用ICP-OES检测汞含量;
- 参考IEC62321-7-1:2015 & IEC62321-7-2:2017, 使用UV-Vis检测六价铬含量;
- 参考IEC62321-6:2015, 使用GC-MS检测PBBs及PBDEs含量。
- With reference to IEC62321-5:2013, determination of Lead and Cadmium by ICP-OES;
- With reference to IEC62321-4:2013+AMD1:2017 CSV, determination of Mercury by ICP-OES;
- With reference to IEC62321-7-1:2015 & IEC62321-7-2:2017, determination of Hexavalent Chromium by Colorimetric Method;
- With reference to IEC62321-6:2015, determination of PBBs and PBDEs by GC-MS.

测试项目 Test Item(s)	单位Unit	测试结果 Test Results	定量限 LOQ	客户限值 Client's limit
		No.2-1+No.2-2 +No.2-3		
铅 Lead (Pb)	mg/kg	ND [#]	2	600
镉 Cadmium (Cd)	mg/kg	ND [#]	2	60
汞 Mercury (Hg)	mg/kg	ND [#]	2	600
六价铬 Hexavalent Chromium (Cr ⁶⁺)	mg/kg	ND [#]	8	600
多溴联苯总和 Sum of PBBs	mg/kg	ND [#]	--	600
一溴联苯 Monobromobiphenyl	mg/kg	ND [#]	5	--
二溴联苯 Dibromobiphenyl	mg/kg	ND [#]	5	--
三溴联苯 Tribromobiphenyl	mg/kg	ND [#]	5	--
四溴联苯 Tetrabromobiphenyl	mg/kg	ND [#]	5	--
五溴联苯 Pentabromobiphenyl	mg/kg	ND [#]	5	--
六溴联苯 Hexabromobiphenyl	mg/kg	ND [#]	5	--
七溴联苯 Heptabromobiphenyl	mg/kg	ND [#]	5	--
八溴联苯 Octabromobiphenyl	mg/kg	ND [#]	5	--
九溴联苯 Nonabromobiphenyl	mg/kg	ND [#]	5	--
十溴联苯 Decabromobiphenyl	mg/kg	ND [#]	5	--
多溴二苯醚总和 Sum of PBDEs	mg/kg	ND [#]	--	600
一溴二苯醚 Monobromodiphenyl ether	mg/kg	ND [#]	5	--
二溴二苯醚 Dibromodiphenyl ether	mg/kg	ND [#]	5	--
三溴二苯醚 Tribromodiphenyl ether	mg/kg	ND [#]	5	--
四溴二苯醚 Tetrabromodiphenyl ether	mg/kg	ND [#]	5	--
五溴二苯醚 Pentabromodiphenyl ether	mg/kg	ND [#]	5	--
六溴二苯醚 Hexabromodiphenyl ether	mg/kg	ND [#]	5	--
七溴二苯醚 Heptabromodiphenyl ether	mg/kg	ND [#]	5	--
八溴二苯醚 Octabromodiphenyl ether	mg/kg	ND [#]	5	--
九溴二苯醚 Nonabromodiphenyl ether	mg/kg	ND [#]	5	--
十溴二苯醚 Decabromodiphenyl ether	mg/kg	ND [#]	5	--
结论 Conclusion	--	符合/Pass	--	--



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测试项目 Test Item(s)	单位 Unit	测试方法/测试仪器 Test Method & Test Equipment	结果 Results	LOQ	客户限值 Client's limit
			No.2-1 +No.2-2 +No.2-3		
邻苯二甲酸二(2-乙基己基)酯 (DEHP) Bis (2-ethylhexyl)- phthalate (DEHP)	mg/kg	IEC 62321-8:2017, GC-MS	ND [#]	50	600
邻苯二甲酸二丁酯(DBP) Dibutyl phthalate (DBP)	mg/kg		ND [#]	50	600
邻苯二甲酸丁苄酯(BBP) Benzylbutyl phthalate (BBP)	mg/kg		ND [#]	50	600
邻苯二甲酸二异丁酯(DIBP) Diisobutyl phthalate (DIBP)	mg/kg		ND [#]	50	600
结论 / Conclusion	--	--	符合/ Pass	--	--

测试项目 Test Item(s)	单位Unit	测试结果 Test Results	定量限 LOQ	客户限值 Client's limit
		No.2-4		
铅 Lead (Pb)	mg/kg	ND	2	600
镉 Cadmium (Cd)	mg/kg	ND	2	60
汞 Mercury (Hg)	mg/kg	ND	2	600
六价铬 Hexavalent Chromium (Cr ⁶⁺)	ug/cm ²	ND*	0.10	<0.10
结论 Conclusion	--	符合/Pass	--	--



备注/ Note:

- (1) ND =未检出, 检测值小于定量限/ Not Detected or lower than limit of quantitation
- (2) mg/kg =毫克每千克 (milligram per kilogram)= 百万分之一 (ppm), ug/cm²=微克每平方厘米(microgram per square centimeter)
- (3) LOQ =定量限/ Limit of quantitation
- (4) "--" =未规定/ Not regulated
- (5) 根据IEC 62321-7-1: 2015沸水萃取:

ND* =阴性, 表示涂层不存在Cr⁶⁺, 即在沸水萃取溶液中六价铬浓度小于0.10ug/cm²

不确定 = 即在沸水萃取溶液中六价铬浓度大于或等于0.10ug/cm²和小于或等于0.13ug/cm²

阳性 = 表示涂层存在Cr⁶⁺, 即在沸水萃取溶液中六价铬浓度大于0.13ug/cm²

关于金属样品的保存条件和生产日期将不能被采用, 其测试结果只能证明当下方法测试下样品是否存在/不存在Cr⁶⁺。

According to IEC 62321-7-1:2015, boiling water extraction:

ND* = Negative, absence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is less than 0.10ug/cm².

Inconclusive = the detected concentration in boiling water extraction solution is greater than or equal to 0.10ug/cm² and less than or equal to 0.13ug/cm².

Positive = Presence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/cm².

Information on storage conditions and production date of the tested sample is unavailable and thus Cr⁶⁺ results represent status of the sample at the time of testing.

- (6) “#”=依据申请方要求, 对样品按等质量比例进行混合测试, 基于混合测试部件中的最小样品质量计算测试结果。/ As per applicant's requirement, the testing was conducted based on mixed components by weight in equal ratio, results are calculated by the minimum weight of mixed components.

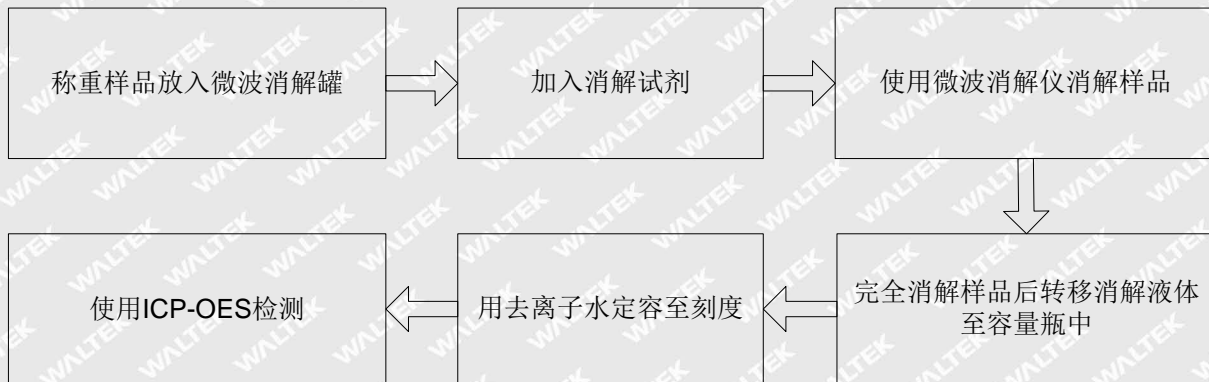
样品描述 / Specimen Description:

样品编号 Specimen No.	样品描述 Specimen Description
2-1	带黑色涂层的白色塑料壳(数码管) White plastic shell with black coating(nixie tube)
2-2	黑色电路板(数码管) Black PCB(nixie tube)
2-3	透明环氧树脂(数码管) Transparent epoxy resin(nixie tube)
2-4	银色金属插脚(数码管) Silvery metal pin(nixie tube)

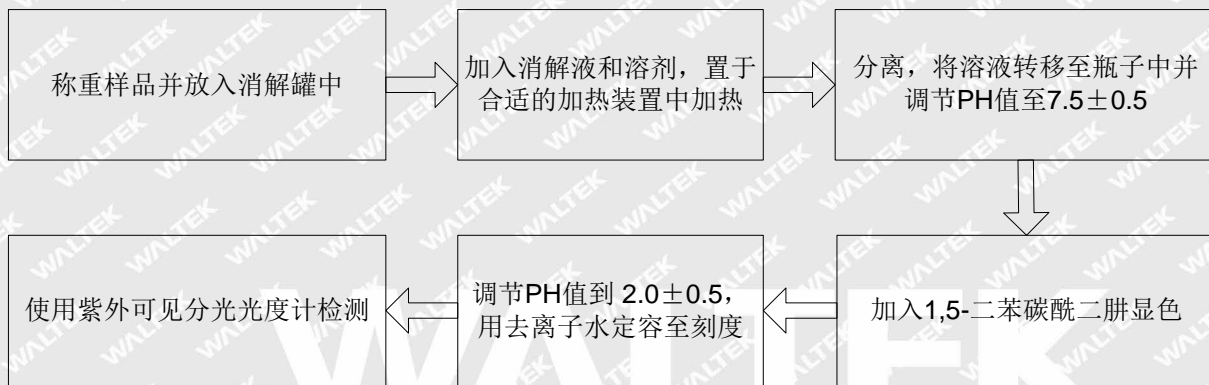


测试流程图:

1. 铅、镉、汞测试流程图



2. 六价铬测试流程图
非金属



金属



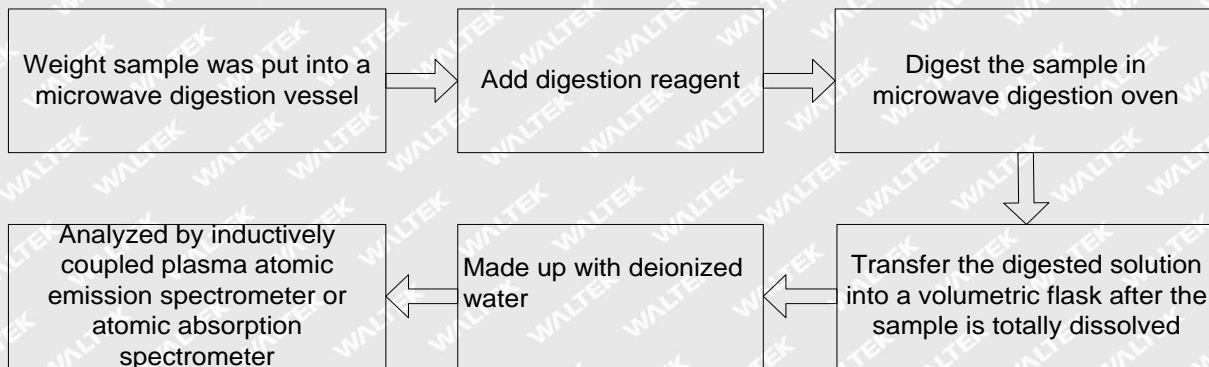
3. 多溴联苯、多溴二苯醚、邻苯二甲酸酯测试流程图





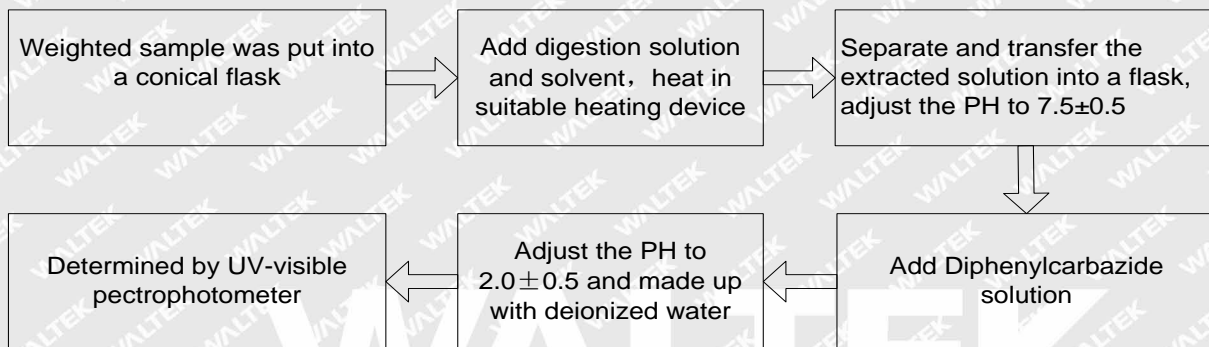
Testing Flow chart:

1. Test for Cd/ Pb/ Hg contents

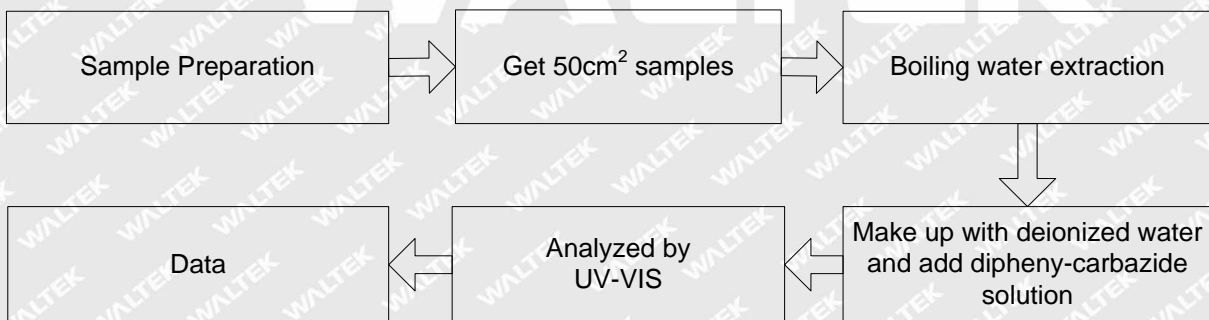


2. Test for Cr⁶⁺ content

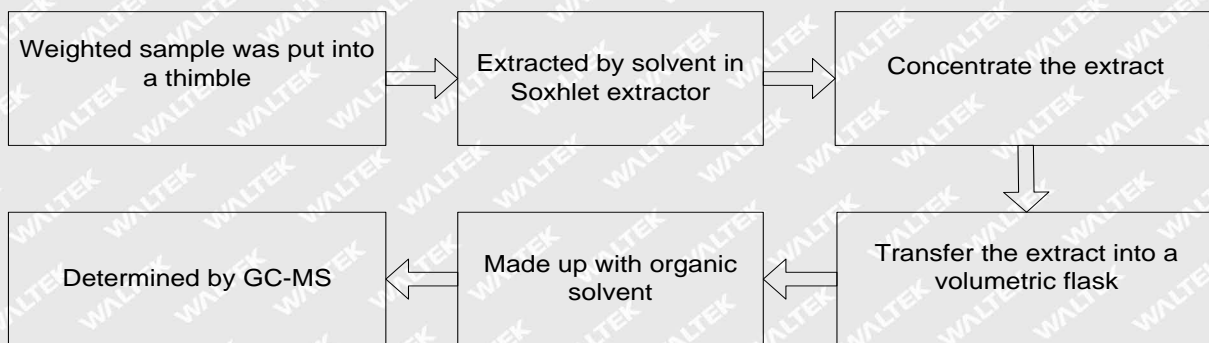
Non-metal:



Metal:



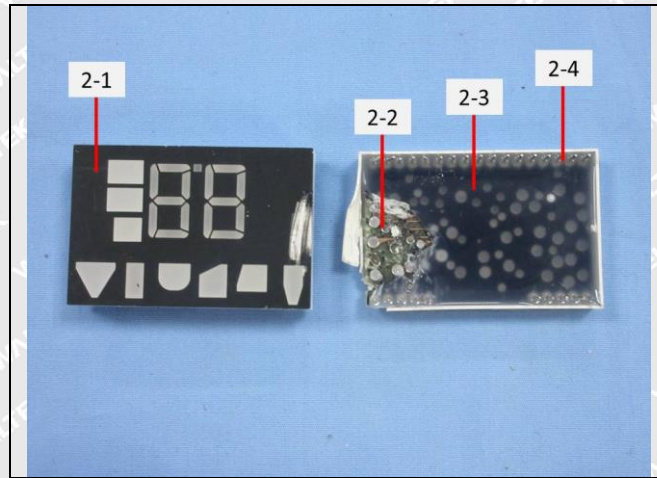
3. Test for PBBs/ PBDEs/ DIBP/ DEHP/ DBP/ BBP contents





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测试部位图片 / Photograph of parts tested:



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备注/ Remarks:

1. 检验检测结果仅对测试样品负责;
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=====报告结束/ End of Report =====

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