



验证报告

Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 1 页 共 17 页
Page 1 of 17

CENTRE TESTING INTERNATIONAL



报告抬头公司名称 广东万连科技有限公司
Company Name GUANGDONG WANLIAN TECHNOLOGY CO.,LTD
shown on Report
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Address ROOM 106, NO.6 XIXING STREET, CHANG 'AN TOWN, DONGGUAN CITY, GUANGDONG PROVINCE

结论 Conclusion

测试样品 Tested Sample	依据标准/指令 According to standard/directive	结果 Result
提交样品 Submitted Sample	欧盟 RoHS 指令 2011/65/EU 及其修订指令(EU) 2015/863 RoHS Directive 2011/65/EU with amendment (EU) 2015/863	符合 PASS

符合表示检测结果满足欧盟 RoHS 指令 2011/65/EU 及其修订指令(EU) 2015/863 要求的限值。

PASS means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment(EU) 2015/863.

批 准

Approved by

文利

授权签字人 Lab Authorized

Signatory

日 期

Date

2024.12.18



检测检测集团股份有限公司
Centre Testing International Group Co.,Ltd.

CTI Building, Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

No. R812811506

广东省深圳市宝安区新安街道兴东社区华测检测大楼

验证报告
Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 2 页 共 17 页
Page 2 of 17

报告内容 Report Content

样品信息 Sample Information3

验证要求 Verification Requested3

验证依据 Verification Method.....4

验证结果 Verification Result(s).....6

检测流程 Test Process 11

样品图片 Photo(s) of the sample(s).....14

验证报告

Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 3 页 共 17 页
Page 3 of 17

以下测试之样品及样品信息由申请者提供并确认 The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

产品名称 Product Name 航插 Circular Connector
产品型号 Product Model No. DP29、DP11, DP13, DP17, DP21
样品接收日期 2024.11.25
Sample Received Date Nov. 25, 2024
样品验证日期 2024.11.25-2024.12.18
Verification Period Nov. 25, 2024 to Dec. 18, 2024

验证要求

参考欧盟 RoHS 指令 2011/65/EU 及其修订指令(EU) 2015/863, 对所提交样品中的铅(Pb)、镉(Cd)、汞(Hg)、六价铬(Cr(VI))、多溴联苯(PBBs)、多溴二苯醚(PBDEs)和邻苯二甲酸酯【邻苯二甲酸二正丁酯(DBP)、邻苯二甲酸丁基苄酯(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)】进行验证测试。

Verification Requested

With reference to RoHS Directive 2011/65/EU with amendment (EU) 2015/863, to conduct verification test for Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs) and Phthalates (Dibutyl phthalate (DBP), Benzylbutyl phthalate (BBP), Di-2-ethylhexyl phthalate (DEHP), Diisobutyl phthalate (DIBP)) in the submitted samples.

验证报告
Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 4 页 共 17 页
Page 4 of 17

验证依据 Verification Method

A. IEC 62321-3-1:2013 对管控元素的筛选限值

Screening limits for regulated elements according to IEC 62321-3-1:2013 (单位 Unit: mg/kg)

测试元素 Element(s)	聚合物 Polymers	金属 Metals	合成材料 Composite material
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$
Br	$BL \leq (300-3\sigma) < X$	N/A	$BL \leq (250-3\sigma) < X$

B. 邻苯二甲酸酯的筛选限值 Screening limits for Phthalates

测试项目 Test Item(s)	筛选限值 Screening limits (单位 Unit: mg/kg)
邻苯二甲酸二正丁酯 Dibutyl phthalate(DBP)	$BL \leq 600 < X$
邻苯二甲酸丁基苄酯 Benzylbutyl phthalate(BBP)	$BL \leq 600 < X$
邻苯二甲酸二(2-乙基己基)酯 Di-2-ethylhexyl phthalate(DEHP)	$BL \leq 600 < X$
邻苯二甲酸二异丁酯 Diisobutyl phthalate(DIBP)	$BL \leq 600 < X$

C. 化学测试 Chemical Test

测试项目 Tested Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)	方法检出限 MDL	限值 Limit
铅 Lead (Pb)	IEC 62321-5:2013	ICP-OES	10 mg/kg	1000 mg/kg
	参考 IEC 62321-5:2013 Refer to IEC 62321-5:2013		10 mg/kg	
镉 Cadmium (Cd)	IEC 62321-5:2013	ICP-OES	10 mg/kg	100 mg/kg
	参考 IEC 62321-5:2013 Refer to IEC 62321-5:2013		10 mg/kg	
汞 Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES	10 mg/kg	1000 mg/kg
	参考 IEC 62321-4:2013+AMD1:2017 CSV Refer to IEC 62321-4:2013+AMD1:2017 CSV		10 mg/kg	
六价铬 Hexavalent Chromium (Cr(VI))	IEC 62321-7-1:2015	UV-Vis	0.10 µg/cm ² (LOQ)	1000 mg/kg
	IEC 62321-7-2:2017		20 mg/kg	
多溴联苯 Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS	100mg/kg	1000 mg/kg
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS	100mg/kg	1000 mg/kg
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS	50 mg/kg	单项 1000 mg/kg 1000 mg/kg for each

验证报告

Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 5 页 共 17 页
Page 5 of 17

备注 Remark:

- BL = 低于筛选限值 Below limit
- OL = 高于筛选限值 Over limit
- X = 需要做进一步测试的范围 The region where further investigation is necessary
- 3σ = 分析仪器的重复性 The reproducibility of analytical instruments
- N/A = 不适用 Not applicable
- LOD = 方法检出限 Limit of Detection
- LOQ = 定量限，六价铬的定量限为 $0.10 \mu\text{g}/\text{cm}^2$ Limit of Quantification, The LOQ of Hexavalent chromium is $0.10 \mu\text{g}/\text{cm}^2$

验证报告
Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 6 页 共 17 页
Page 6 of 17

验证结果 Verification Result(s)

CTI 样品 ID CTI Sample ID	同材质 ID Same material ID	样品描述 Sample Description	测试项目 Tested Items	XRF 扫描结果 XRF Screening Test	邻苯二甲酸酯 筛选结果 Phthalates Screening Test	化学测试结果 Chemical Test (mg/kg)	结论 Conclusion	样品提交/再次提交日期 Sample Received/ Resubmitted Date
1	3, 10	蓝色塑料 Blue plastic	Pb	BL	/	/	符合 PASS	2024.11.25 Nov. 25, 2024
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs)	BL	/	/		
			Br(PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
			DIBP	N/A	BL	/		
2	-	黑色塑料 Black plastic	Pb	BL	/	/	符合 PASS	2024.11.25 Nov. 25, 2024
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs)	IN	/	N.D.		
			Br(PBDEs)	IN	/	八溴二苯醚 Octabromodiphenyl ether : 254; 九溴二苯醚 Nonabromodiphenyl ether : 150; 其他 Others : N.D.		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
			DIBP	N/A	BL	/		
4	-	黑色硅橡胶 Black silicone rubber	Pb	BL	/	/	符合 PASS	2024.11.25 Nov. 25, 2024
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs)	BL	/	/		
			Br(PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
			DIBP	N/A	BL	/		

验证报告
Verification Report

报告编号
Report No.

A2240733599101E
A2240733599101E

第 7 页 共 17 页
Page 7 of 17

CTI 样品 ID CTI Sample ID	同材质 ID Same material ID	样品描述 Sample Description	测试项目 Tested Items	XRF 扫描结果 XRF Screening Test	邻苯二甲酸酯 筛选结果 Phthalates Screening Test	化学测试结果 Chemical Test (mg/kg)	结论 Conclusion	样品提交/再次提交日期 Sample Received/ Resubmitted Date
5	12, 15	红色硅橡胶 Red silicone rubber	Pb	BL	/	/	符合 PASS	2024.11.25 Nov. 25, 2024
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs)	BL	/	/		
			Br(PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
			DIBP	N/A	BL	/		
6	-	黑色塑料 Black plastic	Pb	BL	/	/	符合 PASS	2024.11.25 Nov. 25, 2024
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs)	BL	/	/		
			Br(PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
			DIBP	N/A	BL	/		
7	16	金色金属 Golden metal	Pb	OL	/	21099 ^{#1}	符合 PASS	2024.11.25 Nov. 25, 2024
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs)	N/A	/	/		
			Br(PBDEs)	N/A	/	/		
			DBP	N/A	/	/		
			BBP	N/A	/	/		
			DEHP	N/A	/	/		
			DIBP	N/A	/	/		

验证报告
Verification Report

报告编号
Report No.

A2240733599101E
A2240733599101E

第 8 页 共 17 页
Page 8 of 17

CTI 样品 ID CTI Sample ID	同材质 ID Same material ID	样品描述 Sample Description	测试项目 Tested Items	XRF 扫描结果 XRF Screening Test	邻苯二甲酸酯 筛选结果 Phthalates Screening Test	化学测试结果 Chemical Test (mg/kg)	结论 Conclusion	样品提交/再次提交日期 Sample Received/ Resubmitted Date
8	9, 17, 18	黑色塑料 Black plastic	Pb	BL	/	/	符合 PASS	2024.11.25 Nov. 25, 2024
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs)	BL	/	/		
			Br(PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
			DIBP	N/A	BL	/		
11	-	黑色塑料 Black plastic	Pb	BL	/	/	符合 PASS	2024.11.25 Nov. 25, 2024
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs)	BL	/	/		
			Br(PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
			DIBP	N/A	BL	/		
13	-	黑色塑料 Black plastic	Pb	BL	/	/	符合 PASS	2024.11.25 Nov. 25, 2024
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs)	IN	/	N.D.		
			Br(PBDEs)	IN	/	N.D.		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
			DIBP	N/A	BL	/		

验证报告
Verification Report

报告编号
Report No.

A2240733599101E
A2240733599101E

第 9 页 共 17 页
Page 9 of 17

CTI 样品 ID CTI Sample ID	同材质 ID Same material ID	样品描述 Sample Description	测试项目 Tested Items	XRF 扫描结果 XRF Screening Test	邻苯二甲酸酯 筛选结果 Phthalates Screening Test	化学测试结果 Chemical Test (mg/kg)	结论 Conclusion	样品提交/再次提交日期 Sample Received/ Resubmitted Date
14	-	黑色塑料 Black plastic	Pb	BL	/	/	符合 PASS	2024.11.25 Nov. 25, 2024
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs)	BL	/	/		
			Br(PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
			DIBP	N/A	BL	/		

验证报告

Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 10 页 共 17 页
Page 10 of 17

备注 Remark:

- N.D. = 未检出 (小于方法检出限) Not Detected (<MDL)
- MDL = Method Detection Limit
- mg/kg = ppm = 百万分之一 parts per million
- 1000 mg/kg = 0.1%
- / = 未检测 Not tested
- IN = 不确定, 需要进一步化学测试确认 Inconclusive, need further chemical test
- N/A = 不适用 Not applicable
- BL = 低于筛选限值 Below limit
- OL = 高于筛选限值, 需进一步化学测试确认 Further chemical test will be conducted while the result is over limit
- 对于多溴联苯 (PBBs) 和多溴二苯醚 (PBDEs), XRF 筛选时其结果显示的是总溴含量; 对于六价铬, XRF 筛选时其结果显示的是总铬含量。When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br Exclusively; When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.
- ^{#1} 根据客户声明, 样品涉及欧盟 RoHS 指令 2011/65/EU 豁免项第 6(c) 条: 铜合金中的铅含量不应该超过 4%(Wt)。According to the client's statement, the material of the sample(s) fall into exemption items 6(c) according to EU Directive 2011/65/EU: Copper alloy containing up to 4 % lead by weight.
- 豁免清单请见官网 <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32011L0065>
Exemption list please see the official website
<https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32011L0065>
- 根据客户声明, 本报告“样品信息”中的多信息原因可能包含(但不限于): 供给不同客户、销往不同的国家或地区、曾用名或多种物质的混合物等情况。
According to the client's statement, the reasons for the multiple information in the "sample information" of this report may include (but are not limited to): supplying to different buyers, being sold to different countries or regions, former names, or mixtures of several substances.
- 根据客户声明, “同材质 ID”列样品与“CTI 样品 ID”列样品为同材质。
According to the client's statement, the samples in the column " Same material ID" and the column "CTI Sample ID" are same material.

验证报告

Verification Report

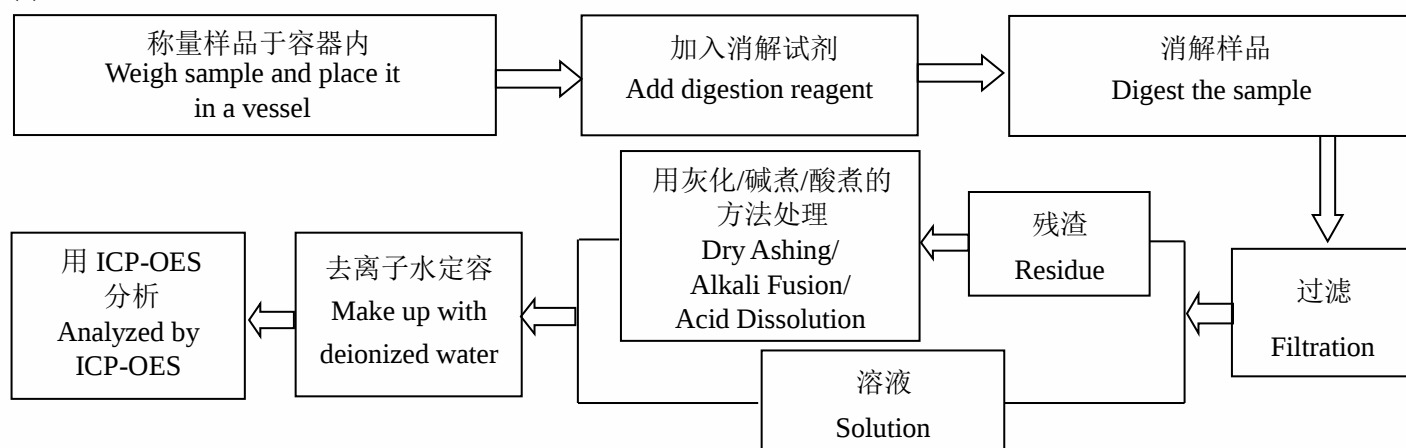
报告编号 A2240733599101E
Report No. A2240733599101E

第 11 页 共 17 页
Page 11 of 17

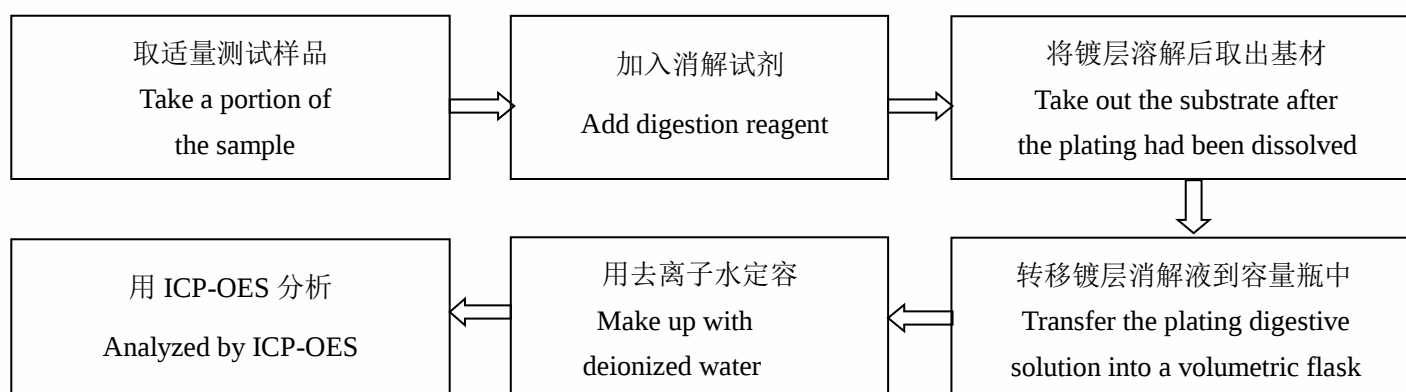
检测流程 Test Process

1. 铅 Lead (Pb), 镉 Cadmium (Cd)

(1) IEC 62321-5:2013

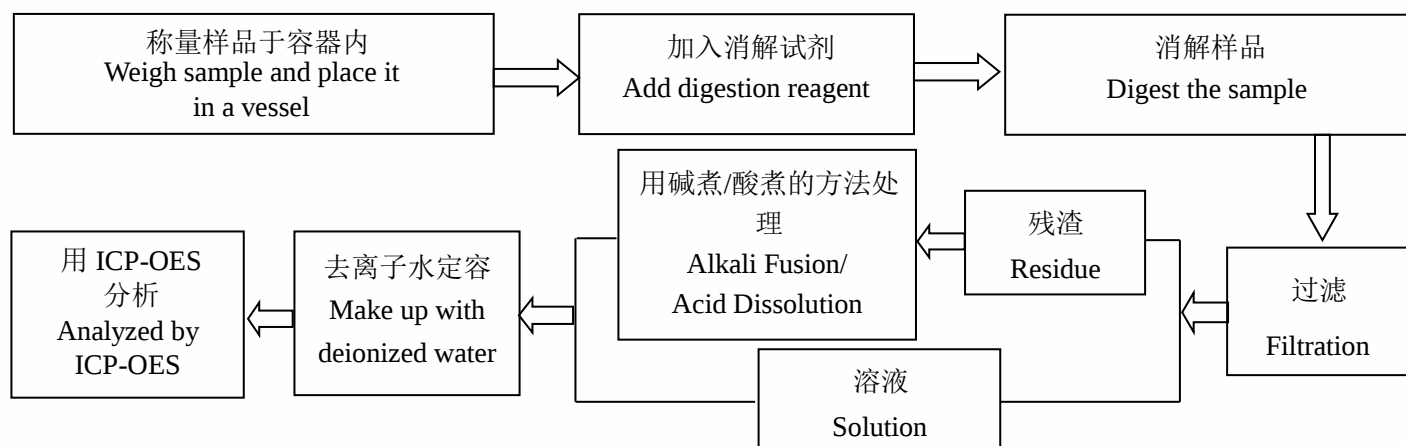


(2) 参考 Refer to IEC 62321-5:2013



2. 汞 Mercury(Hg)

(1) IEC 62321-4:2013+AMD1:2017 CSV



验证报告

Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

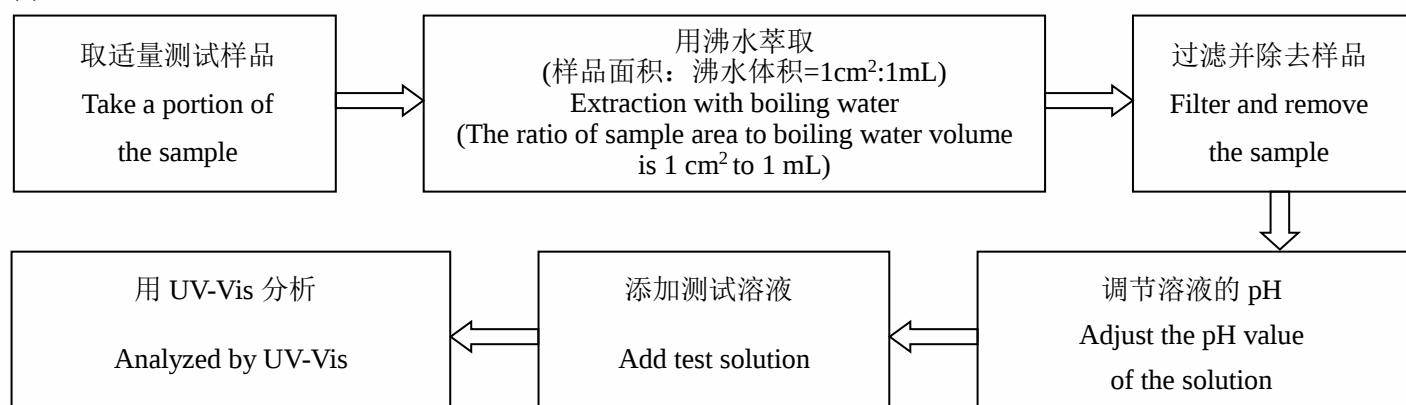
第 12 页 共 17 页
Page 12 of 17

(2) 参考 Refer to IEC 62321-4:2013+AMD1:2017 CSV

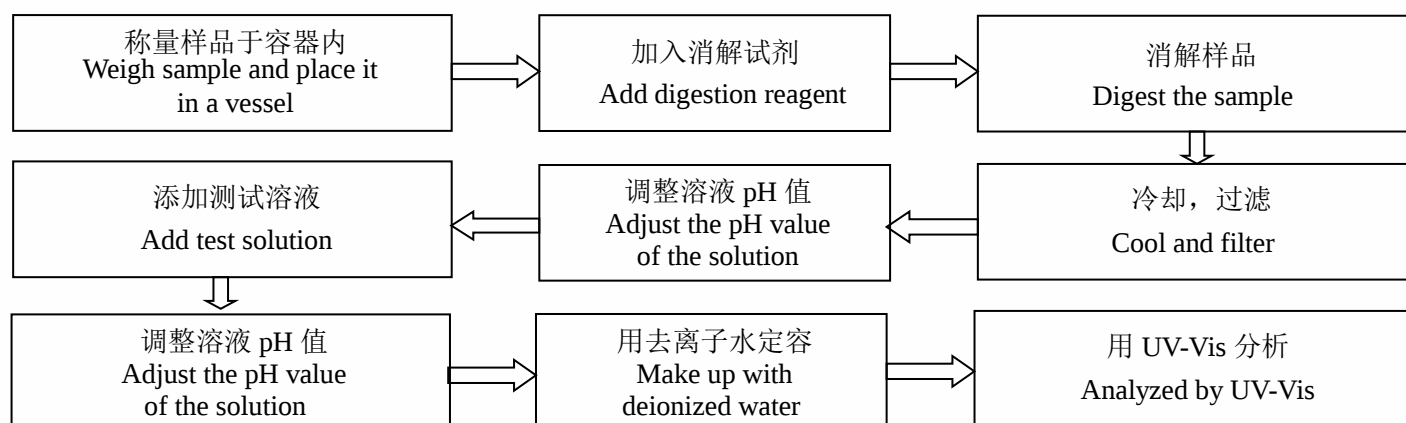


3. 六价铬 Hexavalent Chromium (Cr(VI))

(1) IEC 62321-7-1:2015



(2) IEC62321-7-2:2017

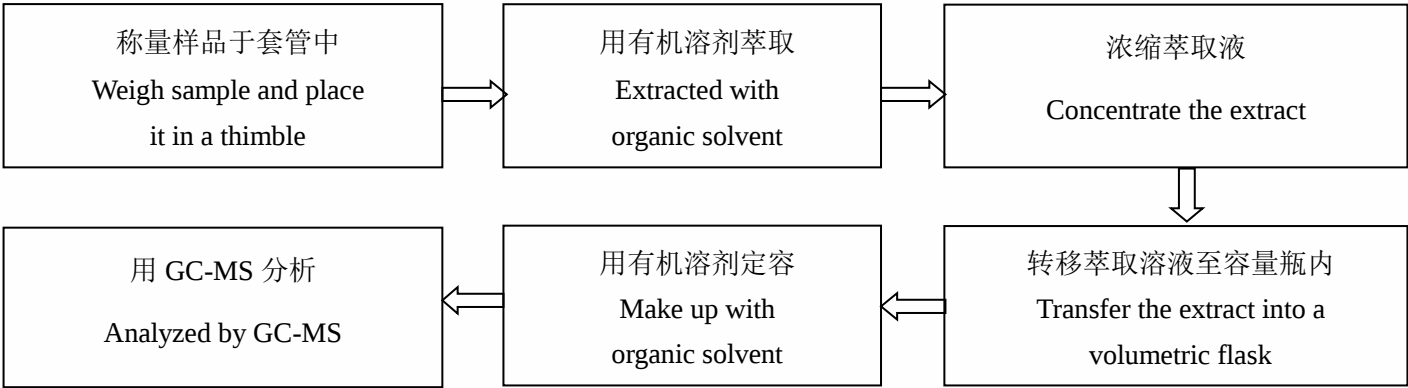


验证报告
Verification Report

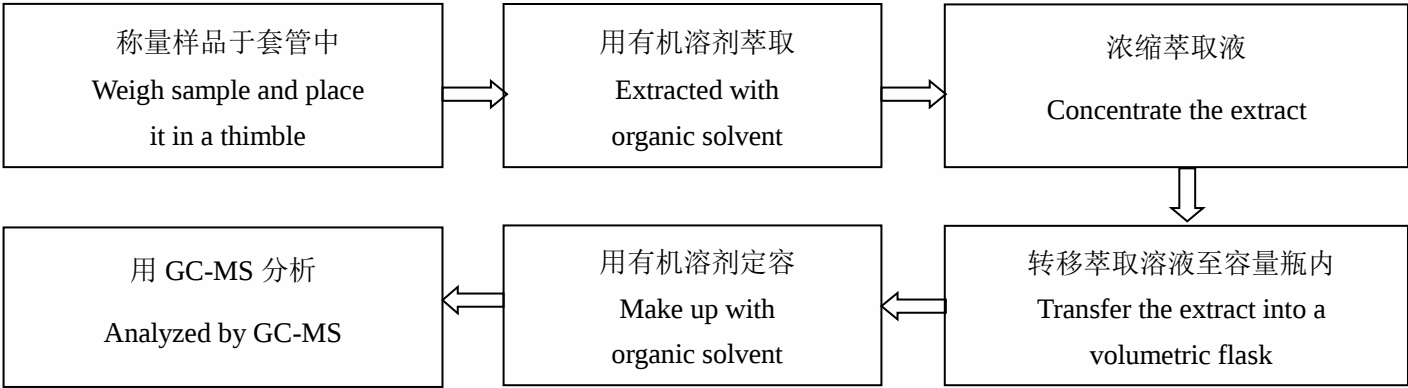
报告编号 A2240733599101E
Report No. A2240733599101E

第 13 页 共 17 页
Page 13 of 17

4. 多溴联苯 Polybrominated Biphenyls (PBBs), 多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)



5. 邻苯二甲酸酯 Phthalates(DBP, BBP, DEHP, DIBP)



验证报告 Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 14 页 共 17 页
Page 14 of 17

样品图片 Photo(s) of the sample(s)

成品 Final Product

1



2

3 (客户参考图片 (非测试样品))
Client Reference Photo (Non tested sample)



4

5



验证报告
Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 15 页 共 17 页
Page 15 of 17

6



7



8



9 (客户参考图片 (非测试样品))
Client Reference Photo (Non tested sample)



10 (客户参考图片 (非测试样品))
Client Reference Photo (Non tested sample)



11



验证报告 Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 16 页 共 17 页
Page 16 of 17

12 (客户参考图片 (非测试样品))
Client Reference Photo (Non tested sample))



13



14



15 (客户参考图片 (非测试样品))
Client Reference Photo (Non tested sample))



16 (客户参考图片 (非测试样品))
Client Reference Photo (Non tested sample))



17 (客户参考图片 (非测试样品))
Client Reference Photo (Non tested sample))



验证报告 Verification Report

报告编号 A2240733599101E
Report No. A2240733599101E

第 17 页 共 17 页
Page 17 of 17

18 (客户参考图片 (非测试样品))
Client Reference Photo (Non tested sample))



声明 Statement:

1. 检测报告无批准人签字、“专用章”及报告骑缝章无效;
This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. 报告抬头公司名称及地址、样品及样品信息由申请者提供, 申请者应对其真实性负责, CTI 未核实其真实性;
The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. 本报告检测结果仅对受测样品负责;
The result(s) shown in this report refer(s) only to the sample(s) tested;
4. 除非另有说明, 报告参照 ILAC-G8:09/2019 / CNAS-GL015:2022 使用简单接受 (w=0) 二元判定规则进行符合性判定;
Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019 / CNAS-GL015:2022;
5. 未经 CTI 书面同意, 不得部分复制本报告;
Without written approval of CTI, this report can't be reproduced except in full;
6. 如检测报告中的英文内容与中文内容有差异, 以中文为准。
In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** 报告结束 ***
*** End of Report ***