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检测
TESTING
CNAS L6478

检测报告
TEST REPORT

报告编号/ Report No.	:	WTF26F03047472C
任务号/Job No.	:	FSW2603020039CJ
委托方/ Applicant	:	慈溪市华江电器有限公司 Cixi Huajiang Electric Appliance Co., Ltd
地址/ Address	:	浙江省慈溪市附海镇观附公路 565 号 No.565, Guanfu Highway, Fuhai Town, Cixi City, Zhejiang Province, China
样品名称/ Sample Name	:	进水管/ Water inlet tube
检测要求/ Test Requested	:	根据欧盟 RoHS 指令 2011/65/EU 及其修订指令 EU 2015/863，测试送检样品中铅、镉、汞、六价铬、多溴联苯和多溴二苯醚、DBP、BBP、DEHP、DIBP 的含量。 With reference to EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863, to determine the Pb, Cd, Hg, Cr^{6+}, PBBs, PBDEs, DBP, BBP, DEHP, DIBP content in the submitted sample.
检测方法/ Test Method	:	参见报告下页/ Refer to next page (s)
检测结论/ Test Conclusion	:	**符合/ Pass**
样品接收日期/ Date of Receipt Sample	:	2026-03-02
检测周期/ Testing Period	:	2026-03-02 ~ 2026-03-09
报告日期/ Date of Issue	:	2026-03-23
检测结果/ Test Result	:	参见报告下页/ Refer to next page (s)

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检验检测专用章
Inspection & Testing Services

梁志聪/Swing Liang

WTF26F03047472C

样品图片 / Sample Photo:

	
1	**2**

测试结果/ Test Results:

1. 铅、镉、汞、六价铬、多溴联苯和多溴二苯醚

Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs and PBDEs

检测方法/仪器/ Test Method/Equipment:

1) 样品的拆卸、拆解和机械拆分
Disassembly, disjunction and mechanical sample preparation
2) 参考 IEC 62321-3-1:2013，使用 X 射线荧光光谱仪对电子产品中的铅、汞、镉、总铬和总溴进行筛选
With reference to IEC 62321-3-1:2013, screening – Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry
3) 参考 IEC 62321-4:2013+AMD1:2017 CSV，使用电感耦合等离子体发射光谱仪（ICP-OES）检测汞含量
With reference to IEC 62321-4:2013+AMD1:2017 CSV, determination of Mercury by ICP-OES
4) 参考 IEC 62321-5: 2013，使用电感耦合等离子体发射光谱仪（ICP-OES）检测铅、镉含量
With reference to IEC 62321-5:2013, determination of Lead and Cadmium by ICP-OES
5) 参考 IEC 62321-7-2: 2017 和 IEC 62321-7-1:2015，使用紫外可见分光光度计（UV-Vis）检测六价铬含量
With reference to IEC 62321-7-2: 2017 and IEC 62321-7-1:2015, determination of Hexavalent Chromium by UV-Vis
6) 参考 IEC 62321-12:2023，使用气相色谱质谱联用仪（GC-MS）检测多溴联苯，多溴二苯醚含量
With reference to IEC 62321-12:2023, determination of PBBs and PBDEs by GC-MS

部件编号 Part No.	部件描述 Part Description	XRF 测试结果 Result of XRF					湿化学测试结果 (毫克/千克) Result of Wet Chemical Testing (mg/kg)	备注 Note
		Cd	Pb	Hg	Cr	Br		
1-1	乳白色塑料外壳 Milk white plastic shell	BL	BL	BL	BL	BL	NA	●
1-2	黑色软塑料垫片 Black soft plastic gasket	BL	BL	BL	BL	BL	NA	●
1-3	银白色金属外壳 Silvery-white metal shell	BL	BL	BL	BL	--	NA	●
1-4	银色金属套管 Silvery metal tube	BL	BL	BL	BL	--	NA	●
1-5	银色金属垫圈 Silvery metal gasket	BL	BL	BL	IN	--	六价铬：阴性 Cr^{6+}: Negative	●
1-6	银色金属螺丝 Silvery metal screw	BL	BL	BL	IN	--	六价铬：阴性 Cr^{6+}: Negative	●

部件编号 Part No.	部件描述 Part Description	XRF 测试结果 Result of XRF					湿化学测试结果(毫克/千克) Result of Wet Chemical Testing (mg/kg)	备注 Note
		Cd	Pb	Hg	Cr	Br		
1-7	银色金属珠 Silvery metal bead	BL	BL	BL	IN	--	六价铬：阴性 Cr^{6+}: Negative	●
1-8	米白色软塑料外壳 Off-white soft plastic shell	BL	BL	BL	BL	BL	NA	●
1-9	白色软塑料管 White soft plastic tube	BL	BL	BL	BL	BL	NA	●
1-10	白色纤维线 White fibrous wire	BL	BL	BL	BL	BL	NA	●
2-1	灰绿色塑料外壳 Grey-green plastic shell	BL	BL	BL	BL	BL	NA	●
2-2	半透明塑料管 Semi-transparent plastic tube	BL	BL	BL	BL	BL	NA	●
2-3	乳白色塑料网 Milk white plastic net	BL	BL	BL	BL	BL	NA	●
2-4	黑色软塑料垫片 Black soft plastic gasket	BL	BL	BL	BL	BL	NA	同/Same 1-2
2-5	银白色金属外壳 Silvery-white metal shell	BL	BL	BL	BL	--	NA	同/Same 1-3
2-6	灰绿色塑料外皮 Grey-green plastic jacket	BL	BL	BL	BL	BL	NA	●
2-7	白色软塑料管 White soft plastic tube	BL	BL	BL	BL	BL	NA	同/Same 1-9
2-8	白色纤维线 White fibrous wire	BL	BL	BL	BL	BL	NA	同/Same 1-10

2. 邻苯二甲酸酯/ Phthalates

检测方法/仪器/ Test Method/Equipment:

1) 参考 IEC 62321-12:2023，使用 GC-MS 检测 DBP，BBP，DEHP，DIBP 含量

With reference to IEC 62321-12:2023, determination of DBP, BBP, DEHP, DIBP by GC-MS

序列号 Serial No.	部件编号 Part No.	测试结果（毫克/千克）/ Result (mg/kg)				备注 Note
		DBP	BBP	DEHP	DIBP	
T01	1-1	ND	ND	ND	ND	●
T02	1-2	ND	ND	ND	ND	●
T03	1-3	--	--	--	--	●
T04	1-4	--	--	--	--	●
T05	1-5	--	--	--	--	●
T06	1-6	--	--	--	--	●
T07	1-7	--	--	--	--	●
T08	1-8	ND	ND	ND	ND	●
T09	1-9	ND	ND	ND	ND	●
T10	1-10	ND	ND	ND	ND	●
T11	2-1	ND	ND	ND	ND	●
T12	2-2	ND	ND	ND	ND	●
T13	2-3	ND	ND	ND	ND	●
T14	2-4	ND	ND	ND	ND	同/Same 1-2
T15	2-5	--	--	--	--	同/Same 1-3
T16	2-6	ND	ND	ND	ND	●
T17	2-7	ND	ND	ND	ND	同/Same 1-9
T18	2-8	ND	ND	ND	ND	同/Same 1-10

备注/ Remark:

(1) XRF所得的测试结果只作初步筛选，如果XRF结果超出IEC 62321-3-1: 2013所规定的警戒范围，建议客户用更精确的化学测试方法测试，如: 用ICP测试Cd、Pb、Hg，用UV-VIS测试Cr^{6+}，用GS/MS测试PBBs和PBDEs（单位:mg/kg）。

Results are obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr^{6+}) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013 (unit: mg/kg).

元素 Element	聚合物 Polymer	金属 Metal	复合材料 Composite Materials
Cd	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	LOD < IN < (150+3σ) ≤ OL
Pb	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <IN	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	--	BL ≤ (250-3σ) < IN

BL=低于限值/ Below Limit OL= 高于限值/ Over Limit LOD =检测极限值/ Limit of Detection

(2) “IN” 表示为未确定区域，需进一步化学测试判断是否符合RoHS指令的要求。

“IN” expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.

(3) XRF筛选测试RoHS元素 – 物质的不均一性导致测试结果和实际值可能存在差异。

The XRF screening test for RoHS elements – the reading may be different to the actual content in the sample be of non-uniformity composition.

(4) mg/kg =毫克每千克(milligram per kilogram) =百万分之(ppm), μg/cm^2=微克每平方厘米(micrograms per square centimetre).

(5) 未检出=检测值小于定量限。

ND = Not Detected or lower than limit of quantitation.

(6) NA =不适用，XRF筛选测试的结果低于限值或通过XRF扫描直接判定测试结果大于限值，不需要进行化学测试。

NA = Not Applicable, as the XRF screening test result was below the limit or as the XRF screening directly determine that test result was over the limit, it was not need to conduct the wet chemical testing.

(7) -- =未规定/ Not Regulated

(8) LOQ =定量限。

LOQ = Limit of quantitation.

测试项目 Test Items	Pb	Cd	Hg	Cr^{6+}		PBB	PBDE	DBP	BBP	DEHP	DIBP
单位 Units	mg/kg	mg/kg	mg/kg	mg/kg	$\mu g/cm^2$	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
定量限 LOQ	2	2	2	8	0.1	5	5	50	50	50	50

对于单一化合物的 PBB 和 PBDE，LOQ 为 5mg/kg。对于聚合物和复合样品的 Cr^{6+}，LOQ 为 8mg/kg。对于金属样品的 Cr^{6+}，LOQ 为 0.1μg/cm²。

The LOQ for single compound of PBBs and PBDEs is 5mg/kg, LOQ of Cr^{6+} for polymer and composite sample is 8 mg/kg and LOQ of Cr^{6+} for metal sample is 0.1μg/cm².

(9) 根据IEC 62321-7-1:2015电子电器产品中限用物质含量的测定程序，金属样品中的Cr^{6+}用沸水萃取方法来测定，其测试结果显示为阳性/阴性。

沸水萃取：

阴性 = 表示涂层不存在 Cr^{6+}，即在沸水萃取溶液中六价铬浓度小于 0.10μg/cm²

阳性 = 表示涂层存在 Cr^{6+}，即在沸水萃取溶液中六价铬浓度大于 0.13μg/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 Cr^{6+}。

According to IEC 62321-7-1:2015, determined of Cr^{6+} on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is less than 0.10μg/cm².

Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than 0.13μg/cm².

Information on storage conditions and production date of the tested sample is unavailable and thus Cr^{6+} results represent status of the sample at the time of testing.

(10) RoHS 要求/ RoHS Requirement

限制物质 Restricted Substances	限值 Limits
镉/ Cadmium (Cd)	0.01% (100 mg/kg)
铅/ Lead (Pb)	0.1% (1000 mg/kg)
汞/ Mercury (Hg)	0.1% (1000 mg/kg)
六价铬/ Chromium (VI) (Cr^{6+})	0.1% (1000 mg/kg)
多溴联苯/ Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
多溴二苯醚/ Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)
邻苯二甲酸二丁酯/Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
邻苯二甲酸丁苄酯/Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
邻苯二甲酸二(2-乙基己基)酯/Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
邻苯二甲酸二异丁酯/Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

(11) 英文字符含义/ Abbreviation:

“Pb”表示铅，“Cd”表示镉，“Hg”表示汞，“Cr”表示铬，“Cr^{6+}”表示六价铬，“Br”表示溴，“PBBs”表示总多溴联苯，“PBDEs”表示总多溴二苯醚。

“Pb” denotes Lead, “Cd” denotes Cadmium, “Hg” denotes Mercury, “Cr” denotes Chromium, “Cr^{6+}” denotes Hexavalent Chromium, “Br” denotes Bromine, “PBBs” denotes Total Polybrominated Biphenyls, “PBDEs” denotes Total Polybrominated Diphenyl Ethers.

“DBP”表示邻苯二甲酸二丁酯，“BBP”表示邻苯二甲酸丁苄酯，“DEHP”表示邻苯二甲酸二(2-乙基己基)酯，“DIBP”表示邻苯二甲酸二异丁酯，“PHT”表示邻苯二甲酸酯。

“DBP” denotes Dibutyl phthalate, “BBP” denotes Benzyl butyl phthalate (BBP), “DEHP” denotes Bis(2-ethylhexyl)-phthalate, “DIBP” denotes Diisobutyl phthalate, “PHT” denotes Phthalates.

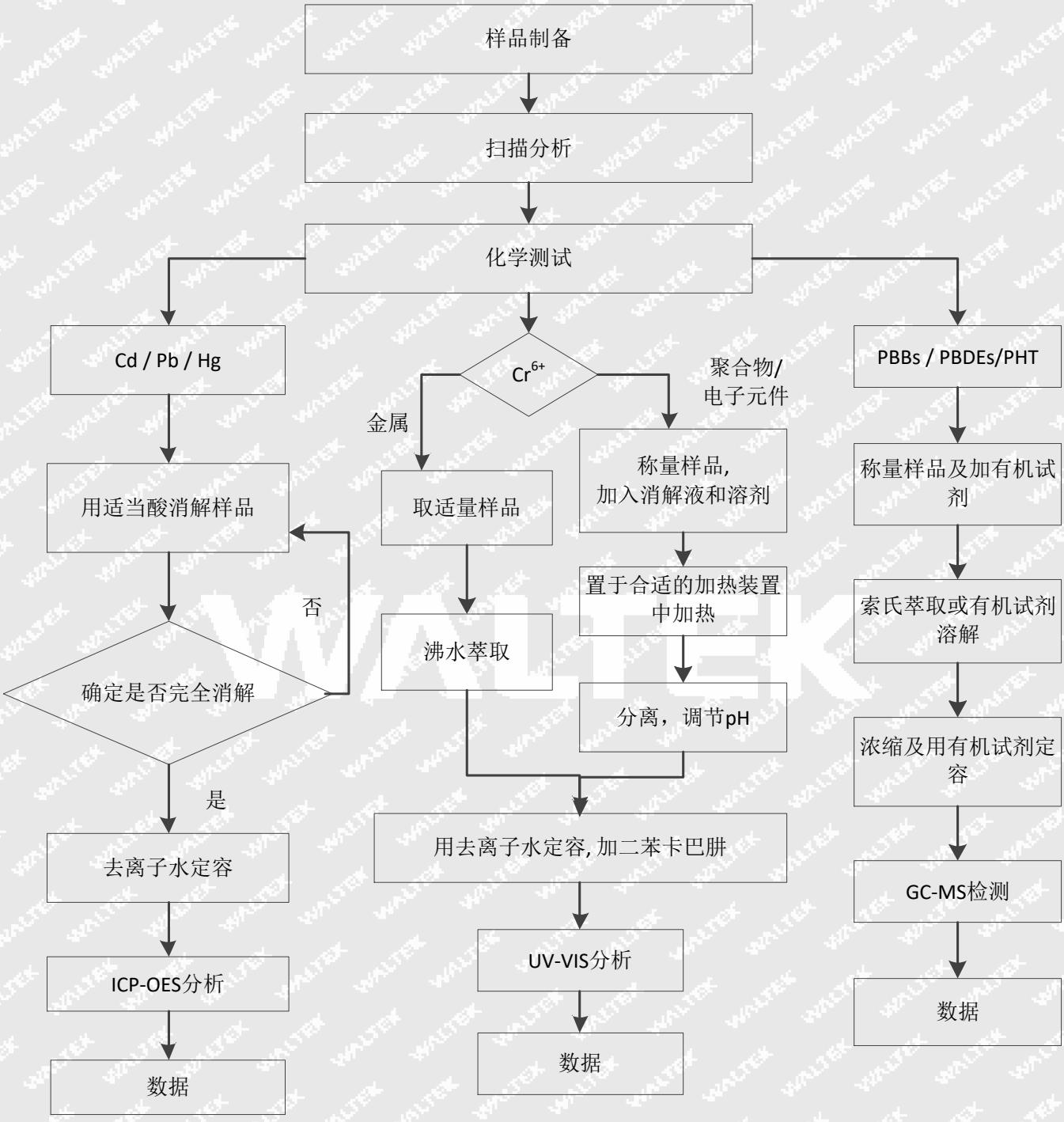
(12) "●"=对本报告图片中标识的样品进行化学检测。

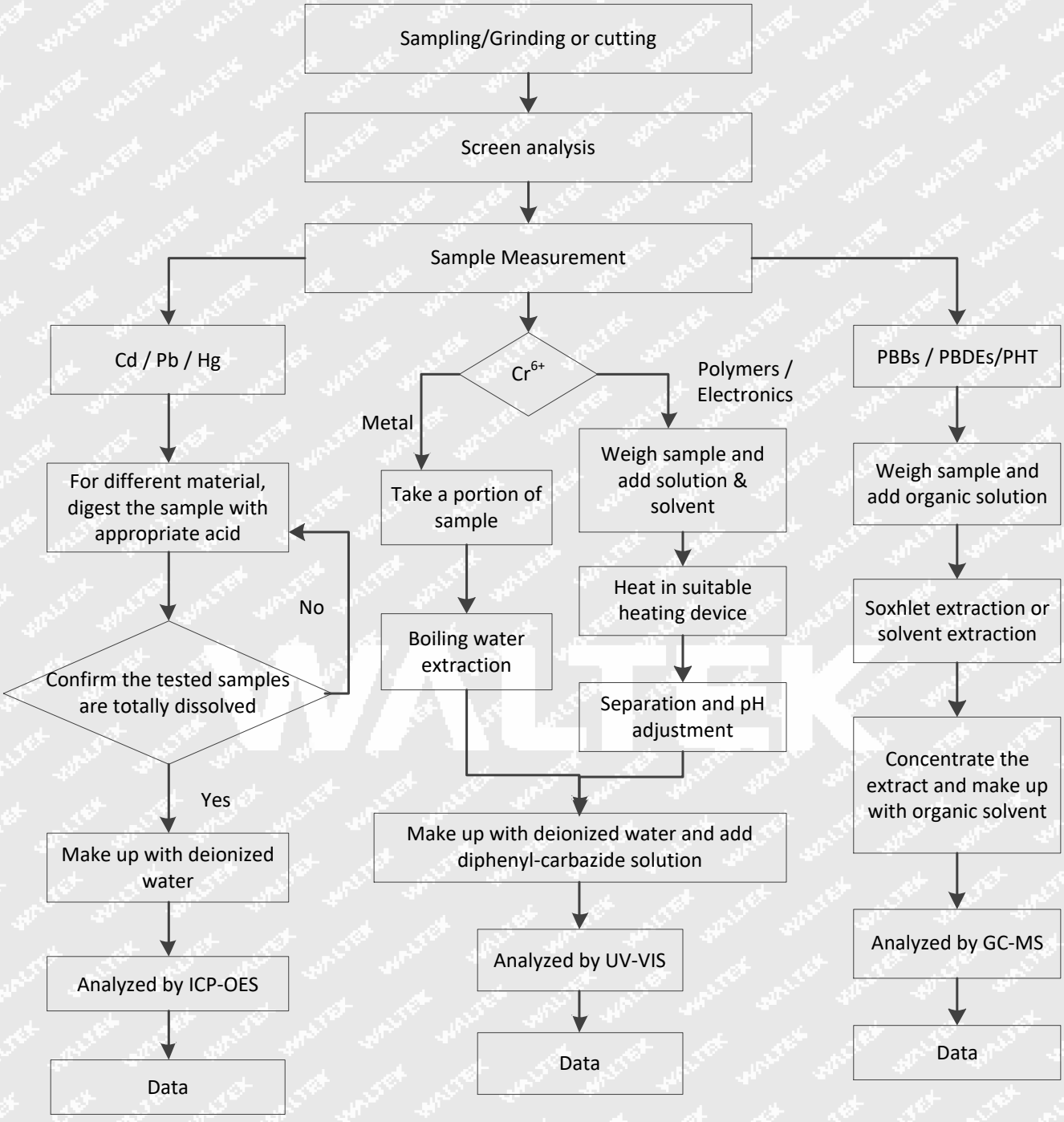
"●"=Actual tested sample. Chemical tests were performed for the samples indicated by the photo in this report.

(13) "同"=表示根据客户要求，该样品与实际检测样品为同材质（或结果均引用自对应编号的报告），未测试。

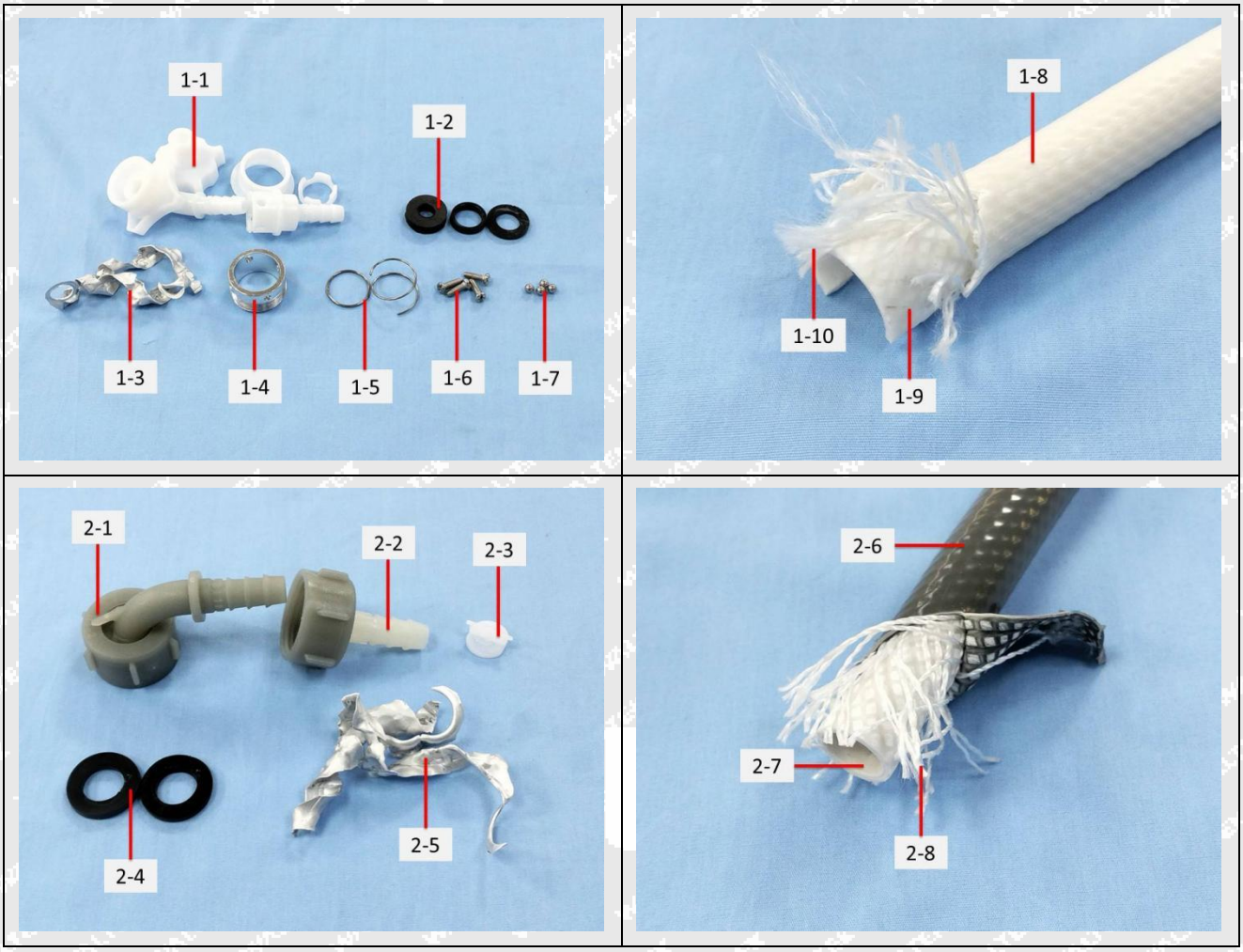
"Same"=It means that as per client's requirement, the sample and the actual tested sample are of the same material (or results of the sample are quoted from corresponding number report) and have not been tested.

测试流程图 / Testing Flow chart:




Sampling/Grinding or cutting
Screen analysis
Sample Measurement
Cd / Pb / Hg
For different material, digest the sample with appropriate acid
Confirm the tested samples are totally dissolved
No
Yes
Make up with deionized water
Analyzed by ICP-OES
Data
Cr6+
Metal
Take a portion of sample
Boiling water extraction
Polymers / Electronics
Weigh sample and add solution & solvent
Heat in suitable heating device
Separation and pH adjustment
Make up with deionized water and add diphenyl-carbazide solution
Analyzed by UV-VIS
Data
PBBs / PBDEs/PHT
Weigh sample and add organic solution
Soxhlet extraction or solvent extraction
Concentrate the extract and make up with organic solvent
Analyzed by GC-MS
Data

测试部位图片 / Photograph of parts tested:



备注/ Remarks:

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