

## 检测报告(Test Report)

报告编号(Report No.): WTH21H04036771X1C-3 日期(Date): 2021/4/29 页数(Page): 1 of 10

委托单位: 深圳市旺兴电子有限公司 (广东联盈控电子科技有限公司)  
Applicant: WANGXING ELECTRONICS CO., LTD.(GUANGDONG LINKEYCON ELECTRONIC TECHNOLOGY CO., LTD.)  
单位地址: 广东省东莞市塘厦镇沙新路 216 号黄金叶科技园 A 栋 4 楼  
Address: 4TH FLOOR, BUILDING A, HUANGJINYE SCIENCE AND TECHNOLOGY PARK, NO.216, SHAXIN ROAD, TANGXIA TOWN, DONGGUAN CITY, GUANGDONG PROVINCE

### 样品信息(Sample Information):

样品名称(Sample Name): 铝电解电容(Aluminum Electronic Capacitor)  
样品描述(Sample Description): 请参见后续页(Please refer to following page(s)).  
委托日期(Sample Received Date): 2021/4/24  
检测日期(Testing Period): 2021/4/24 - 2021/4/28

检测结果(Test Result): 请参见后续页(Please refer to following page(s)).

检测要求(Test Requested):	结论(Conclusion)
根据客户要求, 参照欧盟 RoHS 指令 2011/65/EU 及其修订指令 EU 2015/863, 检测样品中的铅、镉、汞、六价铬、多溴联苯、多溴二苯醚、DBP、BBP、DEHP、DIBP 的含量(As specified by client, to determine the Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP content in the sample with reference to EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863.).	合格(PASS)

授权签字人

Signed for and on behalf of HCT

Michael Huang

Michael Huang



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序号(No.)	样品描述(Sample Description)		备注(Note)
1	黑色塑胶皮连白色印字	Black plastic sheet with white printing	●
2	银色金属外壳	Silver metal shell	●
3	透明胶带	Transparent tape	●
4	黑色软胶塞	Black soft plastic stopper	●
5	银色金属箔	Silver metal foil	●
6	灰色金属箔	Gray metal foil	●
7	棕色湿纸	Brown wet paper	●
8	银色金属引脚	Silver metal pin	●

**备注(Note):**

●=实际检测样品(Actual tested sample)



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检测结果(Test Result(s)):

单位(Unit): mg/kg

检测项目 (Test Items)	检测方法/仪器 (Test Method/ Equipment)	方法检出限 (MDL)	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863		
铅 Lead(Pb)	IEC 62321-5:2013. ICP-OES/AAS	2	1000		
镉 Cadmium(Cd)		2	100		
汞 Mercury(Hg)	IEC 62321-4:2013 +AMD1:2017. ICP-OES	2	1000		
六价铬 Hexavalent Chromium(Cr(VI))	IEC 62321-5:2013/ IEC 62321-7-2:2017. ICP-OES/AAS UV-VIS	8	1000		
一溴联苯 Mono-bromobiphenyl	IEC 62321-6:2015. GC-MS	5	—		
二溴联苯 Di-bromobiphenyl		5			
三溴联苯 Tri-bromobiphenyl		5			
四溴联苯 Tetra-bromobiphenyl		5			
五溴联苯 Penta-bromobiphenyl		5			
六溴联苯 Hexa-bromobiphenyl		5			
七溴联苯 Hepta-bromobiphenyl		5			
八溴联苯 Octa-bromobiphenyl		5			
九溴联苯 Nona-bromobiphenyl		5			
十溴联苯 Deca-bromobiphenyl		5			
多溴联苯 Polybrominated Biphenyls(PBBs)		—		1000	
一溴二苯醚 Mono-bromodiphenyl ether		IEC 62321-6:2015. GC-MS		5	—
二溴二苯醚 Di-bromodiphenyl ether				5	
三溴二苯醚 Tri-bromodiphenyl ether	5				
四溴二苯醚 Tetra-bromodiphenyl ether	5				
五溴二苯醚 Penta-bromodiphenyl ether	5				
六溴二苯醚 Hexa-bromodiphenyl ether	5				
七溴二苯醚 Hepta-bromodiphenyl ether	5				
八溴二苯醚 Octa-bromodiphenyl ether	5				
九溴二苯醚 Nona-bromodiphenyl ether	5				
十溴二苯醚 Deca-bromodiphenyl ether	5				
多溴二苯醚 Polybrominated Diphenyl Ethers(PBDEs)	—	1000			



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检测项目 (Test Items)	含量 (Content)			
	1	3	4	7
铅 Lead(Pb)	N.D.	N.D.	N.D.	N.D.
镉 Cadmium(Cd)	N.D.	N.D.	N.D.	N.D.
汞 Mercury(Hg)	N.D.	N.D.	N.D.	N.D.
六价铬 Hexavalent Chromium(Cr(VI))	N.D.	N.D.	N.D.	N.D.
一溴联苯 Mono-bromobiphenyl	N.D.	N.D.	N.D.	N.D.
二溴联苯 Di-bromobiphenyl	N.D.	N.D.	N.D.	N.D.
三溴联苯 Tri-bromobiphenyl	N.D.	N.D.	N.D.	N.D.
四溴联苯 Tetra-bromobiphenyl	N.D.	N.D.	N.D.	N.D.
五溴联苯 Penta-bromobiphenyl	N.D.	N.D.	N.D.	N.D.
六溴联苯 Hexa-bromobiphenyl	N.D.	N.D.	N.D.	N.D.
七溴联苯 Hepta-bromobiphenyl	N.D.	N.D.	N.D.	N.D.
八溴联苯 Octa-bromobiphenyl	N.D.	N.D.	N.D.	N.D.
九溴联苯 Nona-bromobiphenyl	N.D.	N.D.	N.D.	N.D.
十溴联苯 Deca-bromobiphenyl	N.D.	N.D.	N.D.	N.D.
多溴联苯 Polybrominated Biphenyls(PBBs)	N.D.	N.D.	N.D.	N.D.
一溴二苯醚 Mono-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.
二溴二苯醚 Di-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.
三溴二苯醚 Tri-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.
四溴二苯醚 Tetra-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.
五溴二苯醚 Penta-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.
六溴二苯醚 Hexa-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.
七溴二苯醚 Hepta-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.
八溴二苯醚 Octa-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.
九溴二苯醚 Nona-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.
十溴二苯醚 Deca-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.
多溴二苯醚 Polybrominated Diphenyl Ethers(PBDEs)	N.D.	N.D.	N.D.	N.D.





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检测项目 (Test Items)	检测方法/仪器 (Test Method/ Equipment)	方法检出限 (MDL)	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863
邻苯二甲酸二正丁酯 Dibutyl phthalate (DBP)	IEC 62321-8:2017, GC-MS	30	1000
邻苯二甲酸丁苄酯 Butylbenzyl phthalate (BBP)		30	1000
邻苯二甲酸二(2-乙基己基)酯 Di-(2-ethylhexyl) Phthalate (DEHP)		30	1000
邻苯二甲酸二异丁酯 Di-iso-butyl phthalate (DIBP)		30	1000

检测项目 (Test Items)	含量 (Content)			
	1	3	4	7
邻苯二甲酸二正丁酯 Dibutyl phthalate (DBP)	N.D.	N.D.	N.D.	N.D.
邻苯二甲酸丁苄酯 Butylbenzyl phthalate (BBP)	N.D.	N.D.	N.D.	N.D.
邻苯二甲酸二(2-乙基己基)酯 Di-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.	N.D.
邻苯二甲酸二异丁酯 Di-iso-butyl phthalate (DIBP)	N.D.	N.D.	N.D.	N.D.



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检测项目 (Test Items)	检测方法/仪器 (Test Method/ Equipment)	方法检出限 (MDL)	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863
铅 Lead(Pb)	IEC 62321-5:2013.	2	1000
镉 Cadmium(Cd)	ICP-OES/AAS	2	100
汞 Mercury(Hg)	IEC 62321-4:2013 +AMD1:2017. ICP-OES	2	1000

检测项目 (Test Items)	含 量 (Content)			
	2	5	6	8
铅 Lead(Pb)	N.D.	N.D.	N.D.	N.D.
镉 Cadmium(Cd)	N.D.	N.D.	N.D.	N.D.
汞 Mercury(Hg)	N.D.	N.D.	N.D.	N.D.

检测项目 (Test Item)	检测方法/仪器 (Test Method/ Equipment)	方法检出限 (MDL) ( $\mu\text{g}/\text{cm}^2$ )	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863
六价铬 Hexavalent Chromium(Cr(VI))◆	IEC 62321-7-1:2015. UV-VIS	0.10	—

样品序号 (Sample No.)	结果(Result) ( $\mu\text{g}/\text{cm}^2$ )	定性结果 (Qualitative Result)
2	N.D.	阴性(Negative)
5	N.D.	阴性(Negative)
6	N.D.	阴性(Negative)
8	N.D.	阴性(Negative)

备注(Note): mg/kg = ppm=parts per million

MDL=Method Detection Limit 方法检出限

N.D.=Not Detected(less than method detection limit), 未检出 (小于方法检出限)

“—”=Not regulated 无规定



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Results shown as N.D. are ignored in the sum calculation.

结果显示为 N.D. 不计入总和的计算。

The detected Chromium (Cr) content is "N.D.", therefore, the Hexavalent Chromium (Cr (VI)) content is "N.D.", No need for validation test of the Hexavalent Chromium (Cr (VI)). 检测的铬 (Cr) 含量是 "N.D.", 则六价铬 (Cr(VI)) 含量也是 "N.D.", 不需要进行六价铬 (Cr(VI)) 的确认性测试。

If Chromium (Cr) content exceeds Hexavalent Chromium (Cr (VI)) method detection limit, Validation test of the Hexavalent Chromium (Cr (VI)) is required.

若铬 (Cr) 含量超过六价铬 (Cr(VI)) 方法检出限, 需要进行六价铬 (Cr(VI)) 的确认性测试。

Result(s) of specimen(s) is(are) quoted from HCT report No. WTH21H04036771X1C-1.

样品的数据是引自 HCT 报告号为 WTH21H04036771X1C-1 的数据。

This report replaces the report which report No. is WTH21H04036771C-3.

该报告替代报告编号为 WTH21H04036771C-3 的报告。

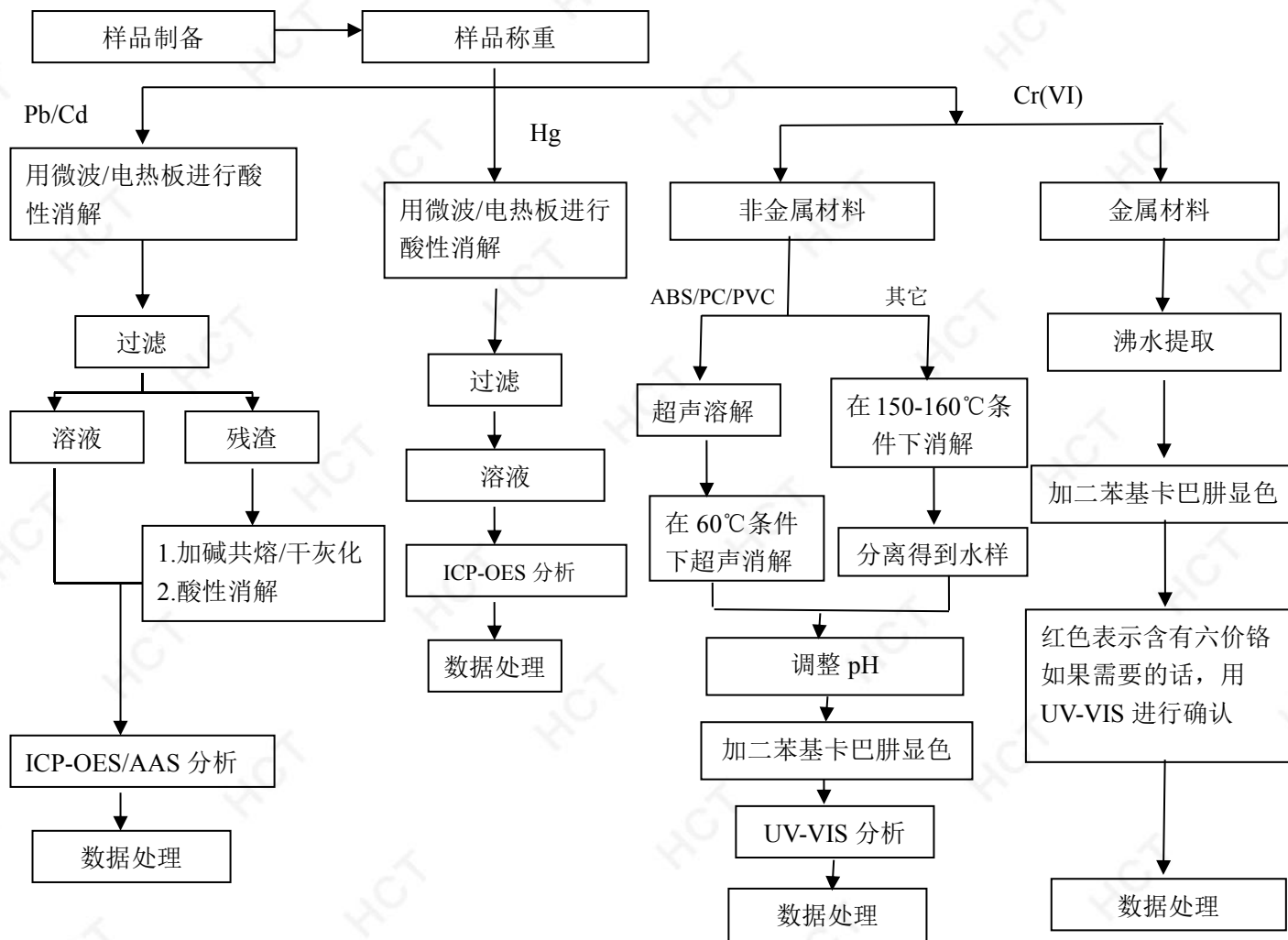
- ◆ = a. 当六价铬的浓度高于  $0.13\mu\text{g}/\text{cm}^2$  时, 样品为阳性, 即含有六价铬;  
b. 当六价铬的浓度为 N.D. (低于  $0.10\mu\text{g}/\text{cm}^2$ ) 时, 样品为阴性, 即未检测到六价铬;  
c. 当六价铬的浓度介于  $0.10\mu\text{g}/\text{cm}^2$  与  $0.13\mu\text{g}/\text{cm}^2$  之间时, 无法直接判定是否检测到六价铬, 因不同个体的样品表面差异可能会影响测定结果;  
由于未获知样品的存储条件和生产日期, 样品的六价铬检测结果仅能代表检测时样品含六价铬的状态。  
a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than  $0.13\mu\text{g}/\text{cm}^2$ . The sample coating is considered to contain Cr(VI);  
b. The sample is negative for Cr(VI) if Cr(VI) is N.D. (concentration less than  $0.10\mu\text{g}/\text{cm}^2$ ). The coating is considered a non-Cr(VI) based coating;  
c. The result between  $0.10\mu\text{g}/\text{cm}^2$  and  $0.13\mu\text{g}/\text{cm}^2$  is considered to be inconclusive -unavoidable coating variations may influence the determination;  
Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



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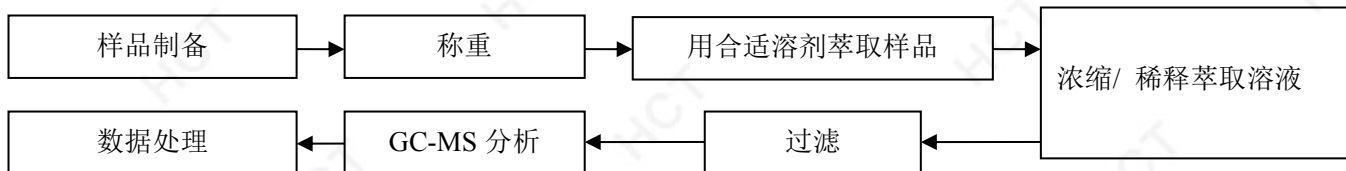
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铅、镉、汞、六价铬、多溴联苯、多溴二苯醚的检测流程图



根据以上的流程图之条件，样品已经完全溶解(六价铬检测方法除外)。

## PBBs/PBDEs

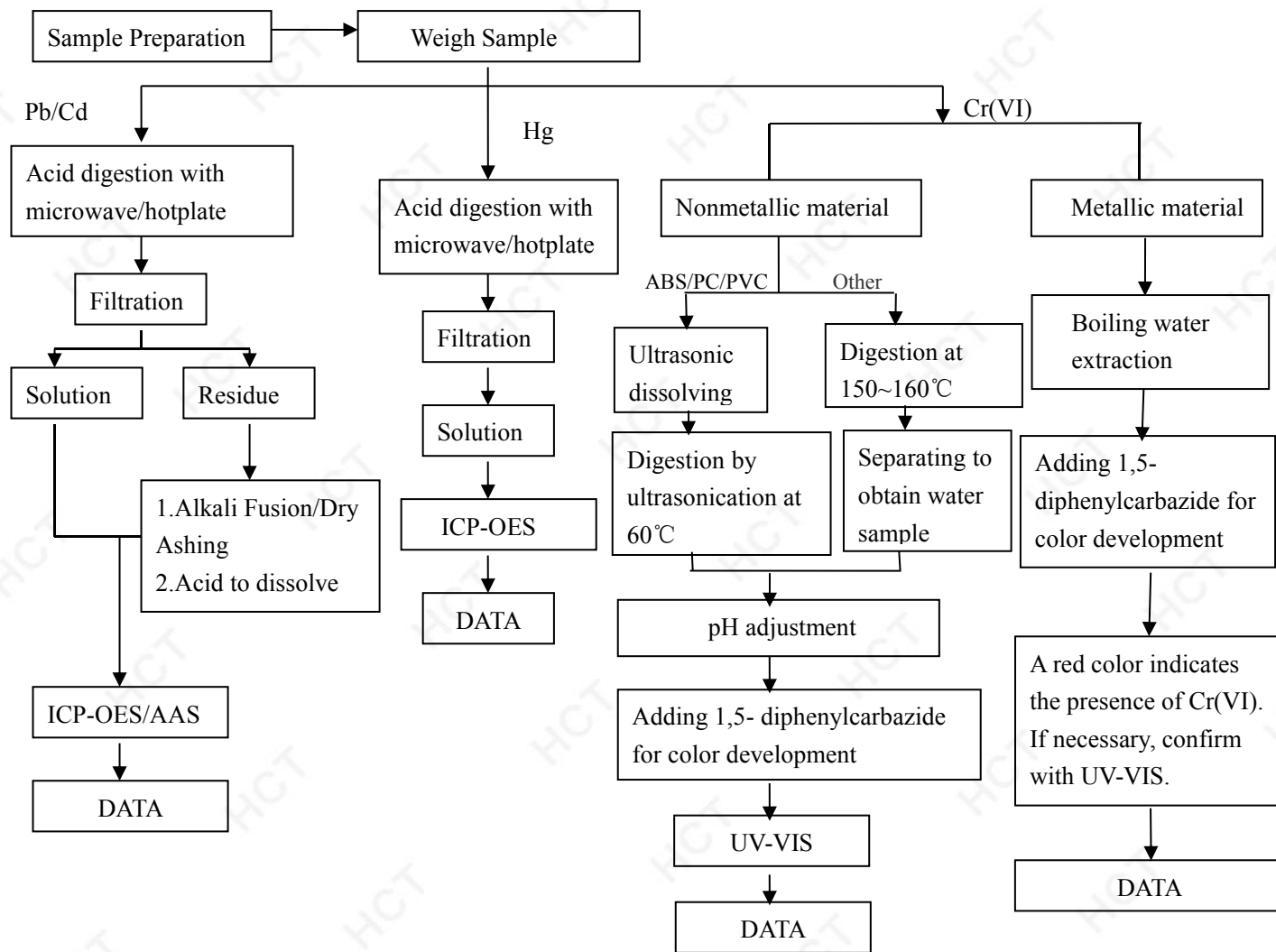




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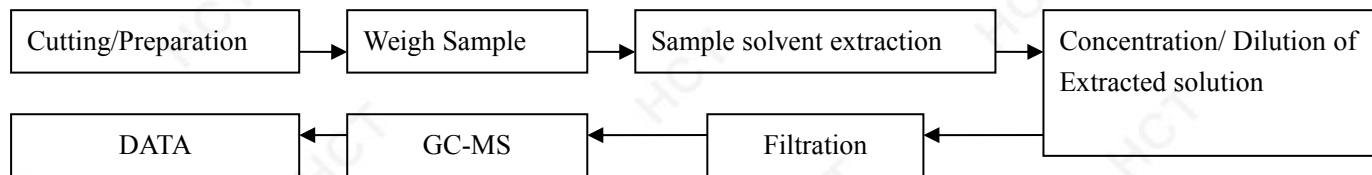
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**Test Flow Chart for Pb, Cd, Hg, Cr(VI), PBBs, PBDEs**



These sample were dissolved totally by pre-conditioning method according to above flow chart(Cr(VI) test method excluded)

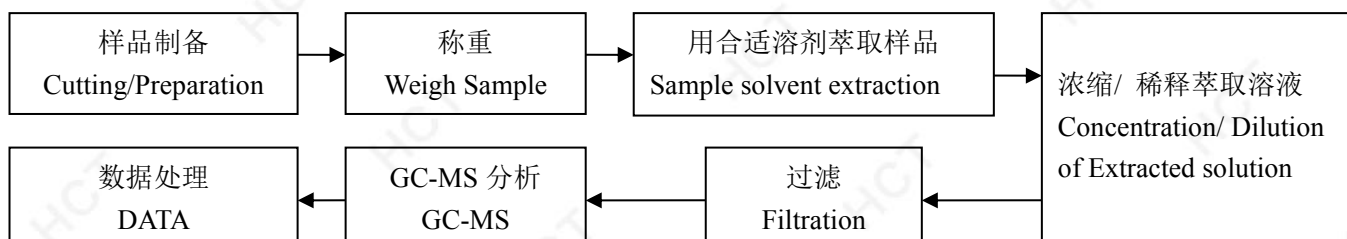
**PBBs/PBDEs**



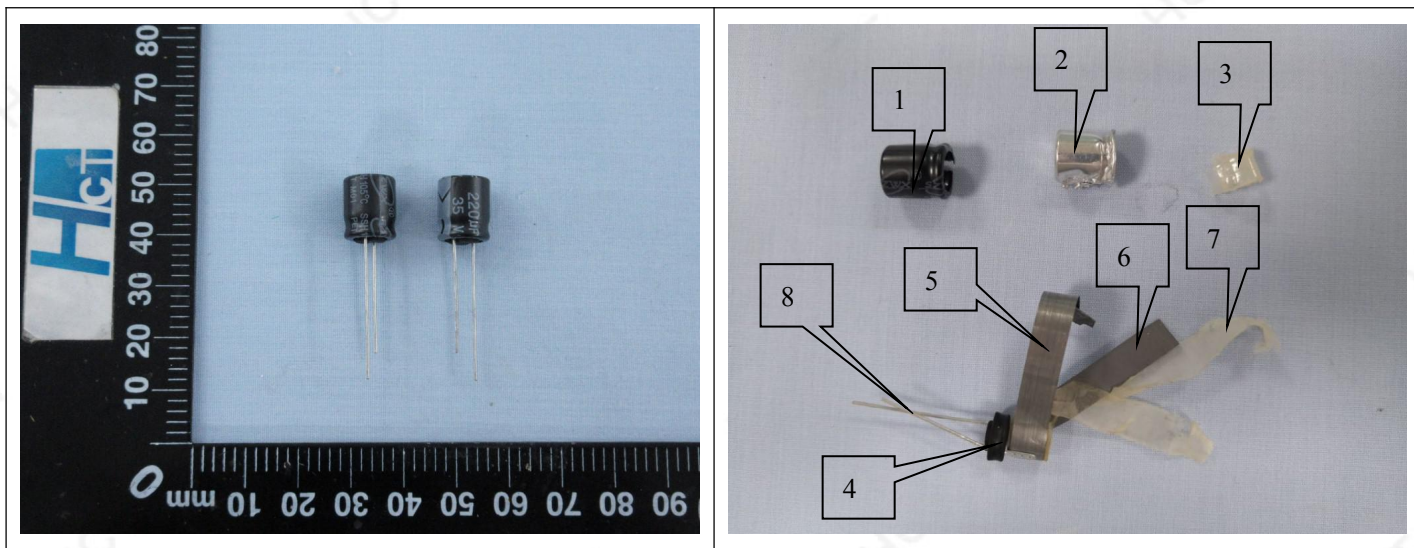
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## DBP, BBP, DEHP, DIBP 的检测流程图 (Test Flow Chart for DBP, BBP, DEHP, DIBP)



## 样品附图(The photo of the sample)



**WTH21H04036771C**

**\*\*\*报告结束(End)\*\*\***

本报告 HCT 盖章才生效, 本报告不可以删改。本报告只对接收样品的检测结果负责。  
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This report will go into effect with HCT stamp. This report could not be revised. This report is only responsible for the test result of received samples. Without written authorization, any copy of this report for propaganda is invalid.

