



检测报告 Test Report

报告编号 A2210038792102001E
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报告抬头公司名称 佛山市承安铜业有限公司
Company Name CHEON WESTERN(CHINA)COPPER LTD.)
shown on Report

地 址 广东省佛山市南海区九江镇沙咀村九江工业园
Address JIUJIANG INDUSTRIAL ZONE, SHAZUI, JIUJIANG, NANHAI DISTRICT, FOSHAN CITY, GUANGDONG PROVINCE, CHINA

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

样品名称 微晶磷铜阳极
Sample Name micro-grain copper anode
材料名称 铜
Material copper
样品接收日期 2021.01.30
Sample Received Date Jan. 30, 2021
样品检测日期 2021.01.30-2021.02.04
Testing Period Jan. 30, 2021 to Feb. 4, 2021

检测要求 根据客户要求, 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), 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP), 砷(As), 铍(Be), 锑(Sb), 六溴环十二烷(HBCDD), 氟(F), 氯(Cl), 溴(Br), 碘(I), 邻苯二甲酸酯, 短链氯化石蜡(SCCPs), 中链氯化石蜡(MCCPs), 全氟辛酸磺酸(PFOS), 全氟辛酸(PFOA)进行测试。

Test Requested As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Arsenic(As), Beryllium(Be), Antimony(Sb), Hexabromocyclododecane (HBCDD), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Phthalates, Short Chain Chlorinated Paraffins (SCCPs), Middle Chain Chlorinated Paraffins (MCCPs), Perfluorooctane Sulfonates(PFOS), Perfluorooctanoic Acid(PFOA) in the submitted sample(s).

检测依据/检测结果 请参见下页。
Test Method/Test Result(s) Please refer to the following page(s).

主 检

孙 婵

审 核

刘琳慧

Tested by

批 准

郑晴涛

Reviewed by

日 期

2021.02.04

Approved by

郑晴涛

Date

技术经理 Technical Manager

No. R183992103

广东省深圳市宝安区新安街道兴东社区华测检测大楼



华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

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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.

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检测依据 Test Method

测试项目 Test Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅 Lead (Pb)	IEC 62321-5:2013	ICP-OES
镉 Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
汞 Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六价铬 Hexavalent Chromium (Cr(VI))	IEC 62321-7-1:2015	UV-Vis
多溴联苯 Polybrominated Biphenyls (PBBs) #	IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs) #	IEC 62321-6:2015	GC-MS
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP) #	IEC 62321-8:2017	GC-MS
砷 Arsenic(As) #	参考US EPA 3050B:1996 & US EPA 6010D:2018 Refer to US EPA 3050B:1996 & US EPA 6010D:2018	ICP-OES
铍 Beryllium(Be) #	参考US EPA 3050B:1996 & US EPA 6010D:2018 Refer to US EPA 3050B:1996 & US EPA 6010D:2018	ICP-OES
锑 Antimony(Sb) #	参考US EPA 3050B:1996 & US EPA 6010D:2018 Refer to US EPA 3050B:1996 & US EPA 6010D:2018	ICP-OES
六溴环十二烷 Hexabromocyclododecane (HBCDD) #	参考US EPA 3540C:1996 & US EPA 8270E:2018 Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS
氟 Fluorine (F) #	参考EN 14582:2016 Refer to EN 14582:2016	IC
氯 Chlorine (Cl) #	参考EN 14582:2016 Refer to EN 14582:2016	IC
溴 Bromine (Br) #	参考EN 14582:2016 Refer to EN 14582:2016	IC
碘 Iodine (I) #	参考EN 14582:2016 Refer to EN 14582:2016	IC
邻苯二甲酸酯 Phthalates#	IEC 62321-8:2017	GC-MS

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检测依据 Test Method

测试项目 Test Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
短链氯化石蜡 Short Chain Chlorinated Paraffins (SCCPs) #	参考US EPA 3540C:1996 & US EPA 8270E:2017 Refer to US EPA 3540C:1996 & US EPA 8270E:2017	GC-MS(NCI)
中链氯化石蜡 Middle Chain Chlorinated Paraffins (MCCPs) #	参考US EPA 3540C:1996 & US EPA 8270E:2018 Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS(NCI)
全氟辛烷磺酸 Perfluorooctane Sulfonates(PFOS) #	参考DIN CEN/TS 15968:2010 Refer to DIN CEN/TS 15968:2010	LC-MS-MS
全氟辛酸 Perfluorooctanoic Acid(PFOA) #	参考DIN CEN/TS 15968:2010 Refer to DIN CEN/TS 15968:2010	LC-MS-MS

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检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
铅 Lead (Pb)	N.D.	2 mg/kg	1000 mg/kg
镉 Cadmium (Cd)	N.D.	2 mg/kg	100 mg/kg
汞 Mercury (Hg)	N.D.	2 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	N.D. ▼	0.10 µg/cm ² (LOQ)	1000 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
多溴联苯 Polybrominated Biphenyls (PBBs) #			
一溴联苯 Monobromobiphenyl	N.D.	5 mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	5 mg/kg	
三溴联苯 Tribromobiphenyl	N.D.	5 mg/kg	
四溴联苯 Tetrabromobiphenyl	N.D.	5 mg/kg	
五溴联苯 Pentabromobiphenyl	N.D.	5 mg/kg	
六溴联苯 Hexabromobiphenyl	N.D.	5 mg/kg	
七溴联苯 Heptabromobiphenyl	N.D.	5 mg/kg	
八溴联苯 Octabromobiphenyl	N.D.	5 mg/kg	
九溴联苯 Nonabromobiphenyl	N.D.	5 mg/kg	
十溴联苯 Decabromobiphenyl	N.D.	5 mg/kg	

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs) #			
一溴二苯醚 Monobromodiphenyl ether	N.D.	5 mg/kg	1000 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	5 mg/kg	
三溴二苯醚 Tribromodiphenyl ether	N.D.	5 mg/kg	
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	5 mg/kg	
五溴二苯醚 Pentabromodiphenyl ether	N.D.	5 mg/kg	
六溴二苯醚 Hexabromodiphenyl ether	N.D.	5 mg/kg	
七溴二苯醚 Heptabromodiphenyl ether	N.D.	5 mg/kg	
八溴二苯醚 Octabromodiphenyl ether	N.D.	5 mg/kg	
九溴二苯醚 Nonabromodiphenyl ether	N.D.	5 mg/kg	
十溴二苯醚 Decabromodiphenyl ether	N.D.	5 mg/kg	

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检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP) #			
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸丁基苄基酯 Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	
砷 Arsenic (As) #	N.D.	10 mg/kg	
铍 Beryllium (Be) #	N.D.	2 mg/kg	
锑 Antimony (Sb) #	N.D.	5 mg/kg	
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	
六溴环十二烷 Hexabromocyclododecane (HBCDD) #	N.D.	5 mg/kg	
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	
氟 Fluorine (F) #	N.D.	10 mg/kg	
氯 Chlorine (Cl) #	N.D.	10 mg/kg	
溴 Bromine (Br) #	N.D.	10 mg/kg	
碘 Iodine (I) #	N.D.	10 mg/kg	

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检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
邻苯二甲酸酯 Phthalates[#]		
邻苯二甲酸二正辛酯 Di-n-octyl phthalate (DNOP) CAS#:117-84-0	N.D.	50 mg/kg
邻苯二甲酸二异壬酯 Di-isononyl phthalate (DINP) CAS#:28553-12-0,68515-48-0	N.D.	50 mg/kg
邻苯二甲酸二异癸酯 Di-iso-decyl phthalate (DIDP) CAS#:26761-40-0,68515-49-1	N.D.	50 mg/kg
邻苯二甲酸二戊酯 Dipentyl phthalate (DPP) CAS#:131-18-0	N.D.	50 mg/kg
邻苯二甲酸二己酯 Di-n-hexyl phthalate (DNHP) CAS#:84-75-3	N.D.	50 mg/kg
测试项目 Tested Item(s)		
短链氯化石蜡 Short Chain Chlorinated Paraffins (SCCPs) [#]	N.D.	100 mg/kg
测试项目 Tested Item(s)		
中链氯化石蜡 Middle Chain Chlorinated Paraffins (MCCPs) [#]	N.D.	100 mg/kg
测试项目 Tested Item(s)		
全氟辛酸 Perfluorooctanoic Acid (PFOA) [#]	N.D.	0.01 mg/kg
测试项目 Tested Item(s)		
全氟辛烷磺酸 Perfluorooctane Sulfonates (PFOS) [#]	N.D.	0.01 mg/kg

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样品/部位描述 铜色金属
Sample/Part Description Cupreous metal

备注: 对于检测铅, 镉, 汞, 砷, 铍, 锑之样品已完全溶解。

-N.D. = 未检出 (小于方法检出限或定量限)

-mg/kg = ppm = 百万分之一

-1000 mg/kg = 0.1%

-LOQ = 定量限, 六价铬的定量限为0.10 $\mu\text{g}/\text{cm}^2$

- ∇ 六价铬浓度小于0.10 $\mu\text{g}/\text{cm}^2$ 样品未检出六价铬。

Remark: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury, Arsenic, Beryllium, Antimony.

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL or LOQ)

-mg/kg = ppm = parts per million

-1000 mg/kg = 0.1%

-LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 $\mu\text{g}/\text{cm}^2$

- ∇ The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10 $\mu\text{g}/\text{cm}^2$. The coating is considered a non-Cr(VI) based coating.

注释: -#表示该项目/方法不在 CNAS 认可范围内。

-本报告中的数据结果供科研、教学、企业内部质量控制、企业产品研发等目的用。

Note: -#indicates the item(s)/method(s) is (are) not in CNAS accreditation scope.

-The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.

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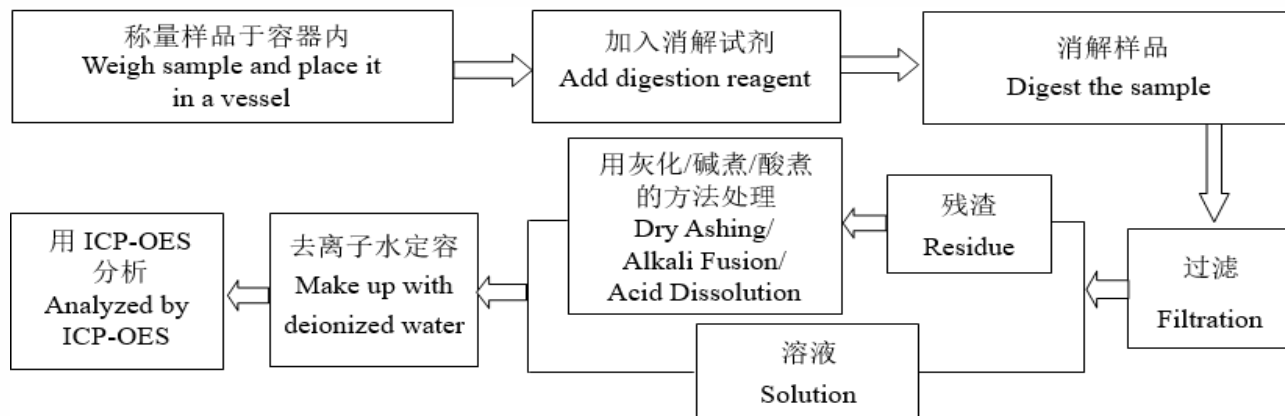
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检测流程 Test Process

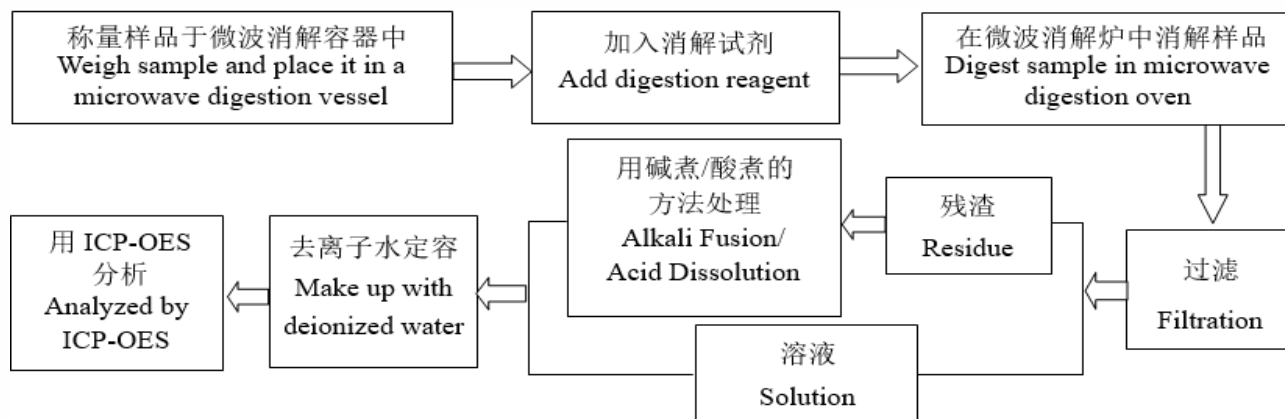
1. 铅(Pb), 镉(Cd)

Lead (Pb), Cadmium (Cd)



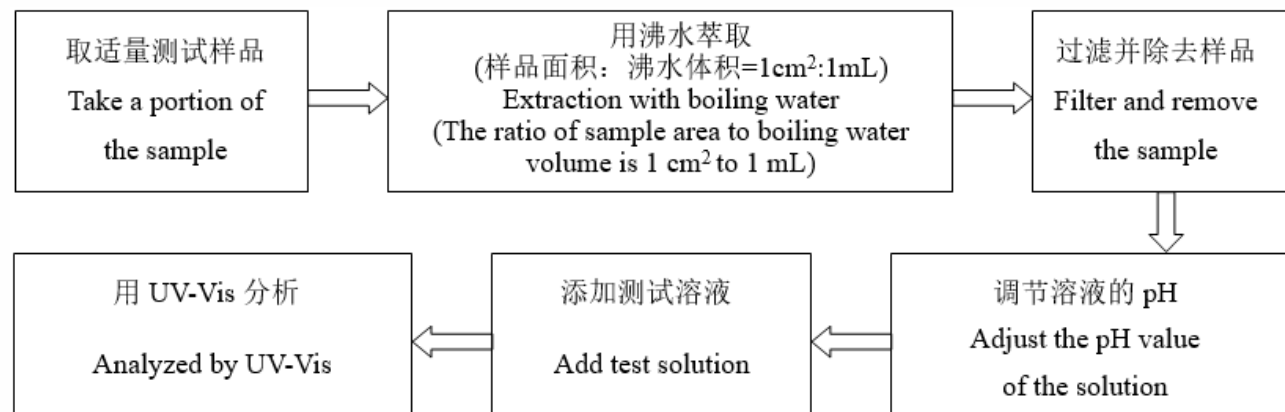
2. 汞(Hg)

Mercury (Hg)



3. 六价铬(Cr(VI))

Hexavalent Chromium (Cr(VI))



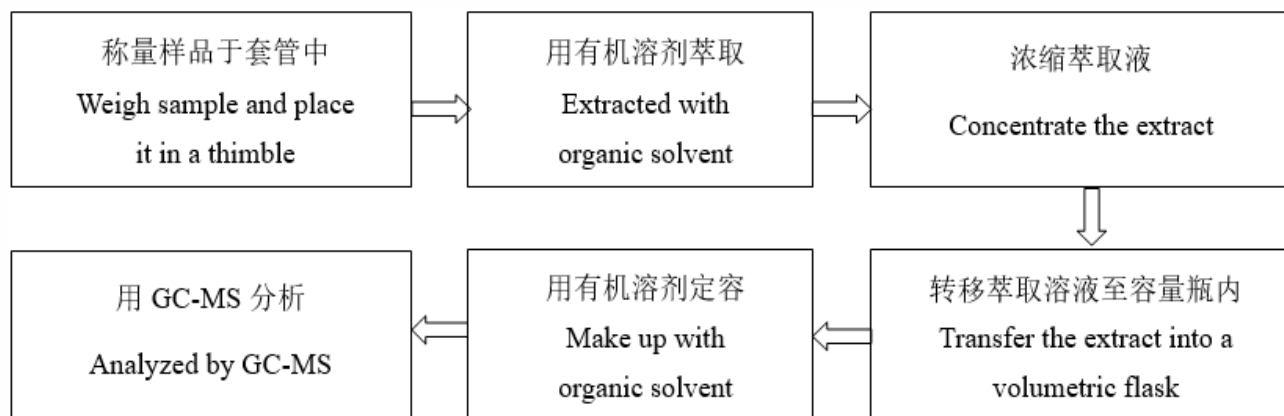
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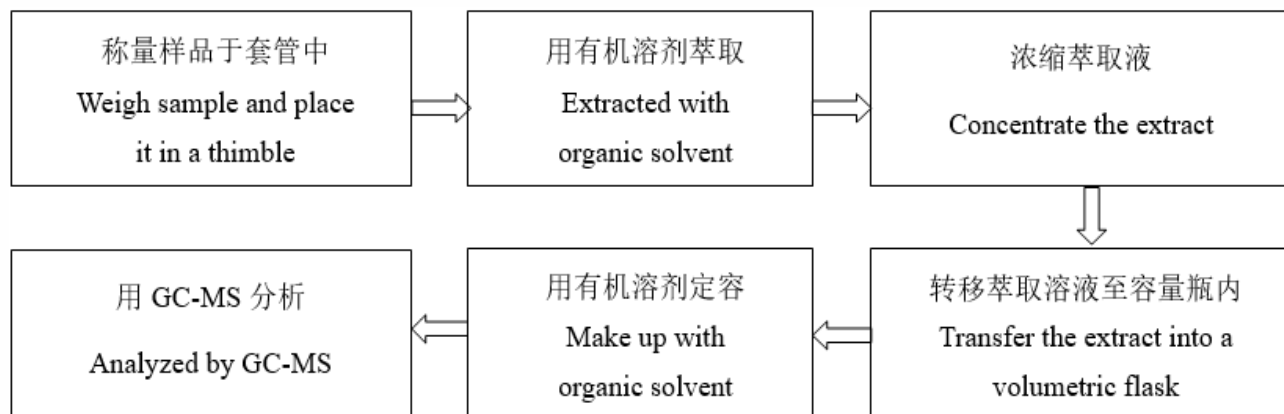
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4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)

Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)

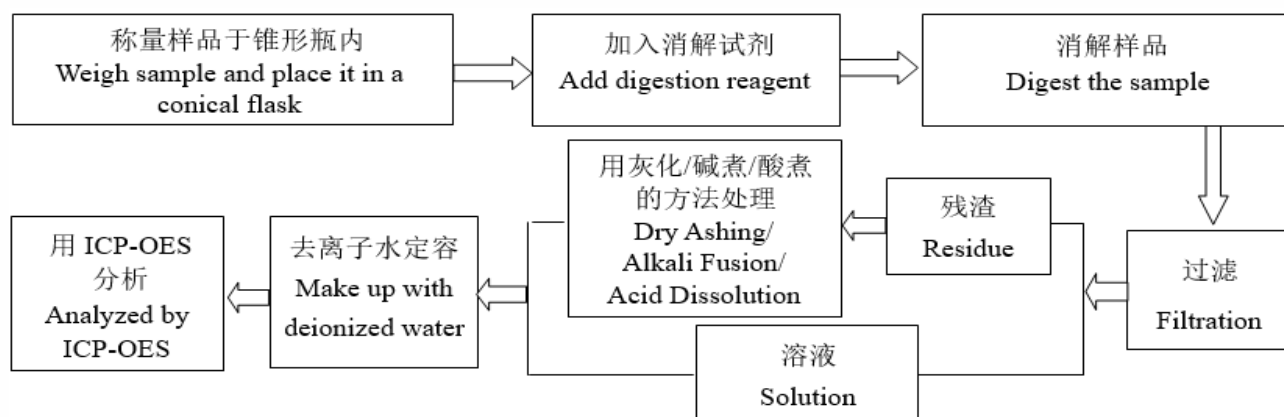


5. 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP), 邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP), Phthalates



6. 砷(As), 铍(Be), 锑(Sb)

Arsenic(As), Beryllium(Be), Antimony(Sb)



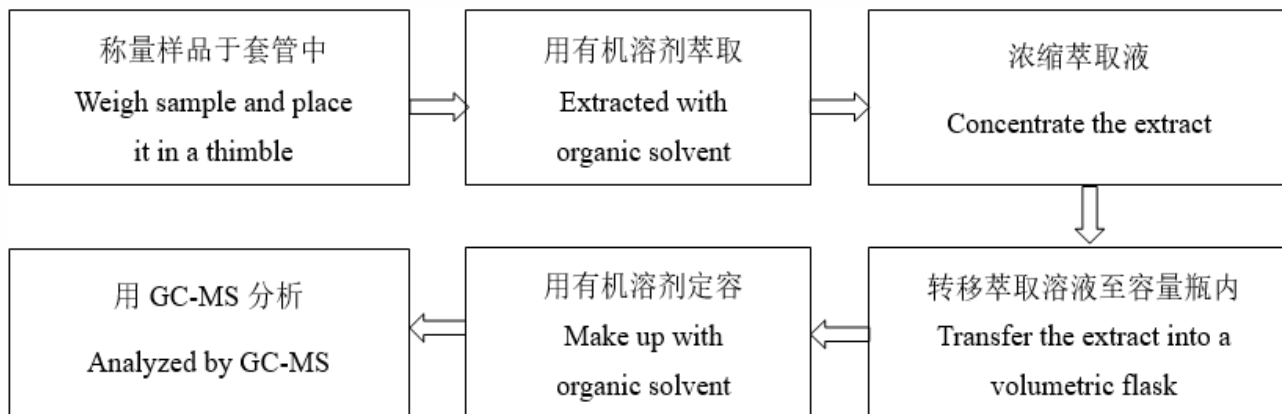
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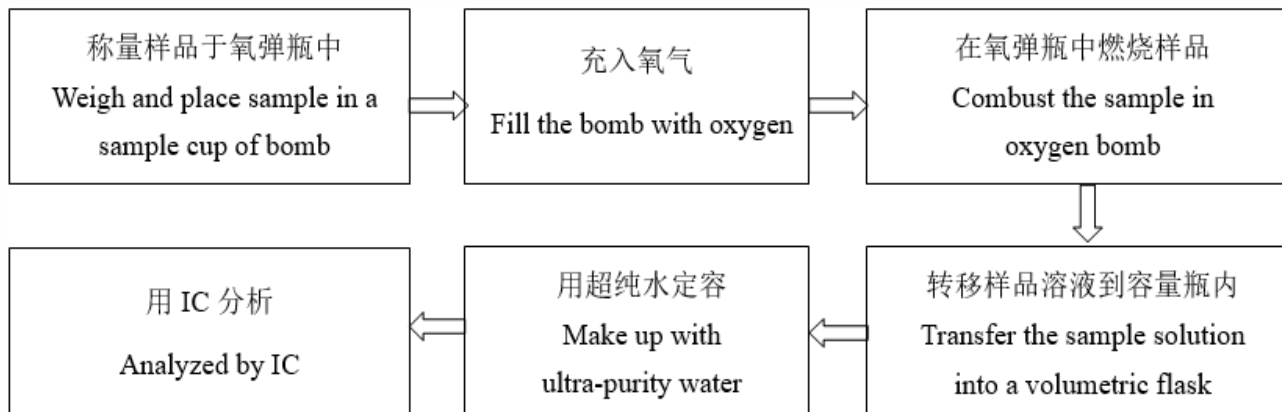
7. 六溴环十二烷(HBCDD)

Hexabromocyclododecane (HBCDD)



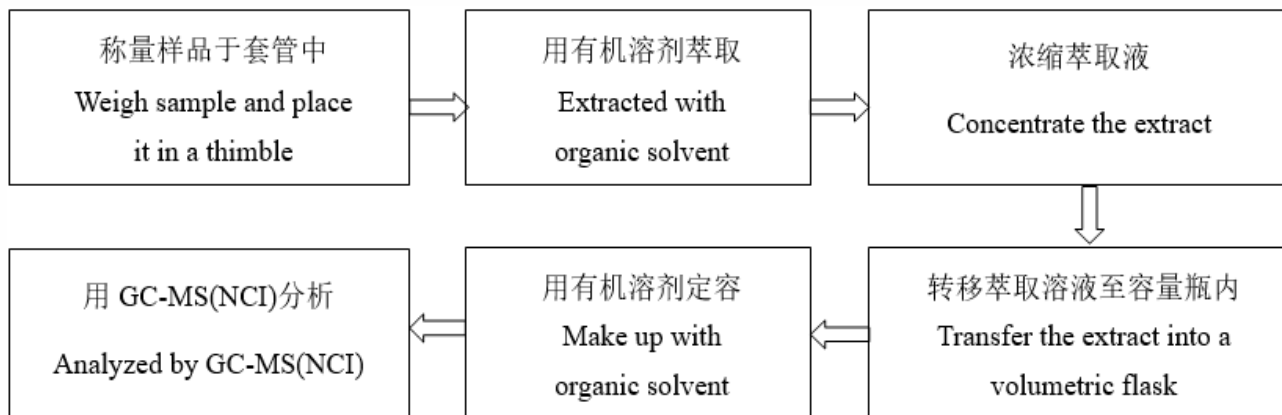
8. 氟(F), 氯(Cl), 溴(Br), 碘(I)

Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)



9. 短链氯化石蜡(SCCPs)

Short Chain Chlorinated Paraffins (SCCPs)



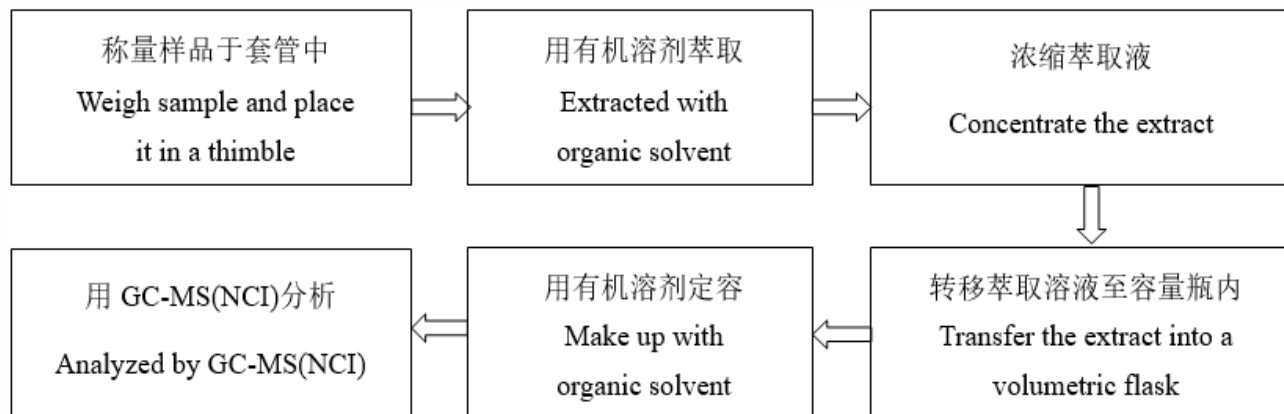
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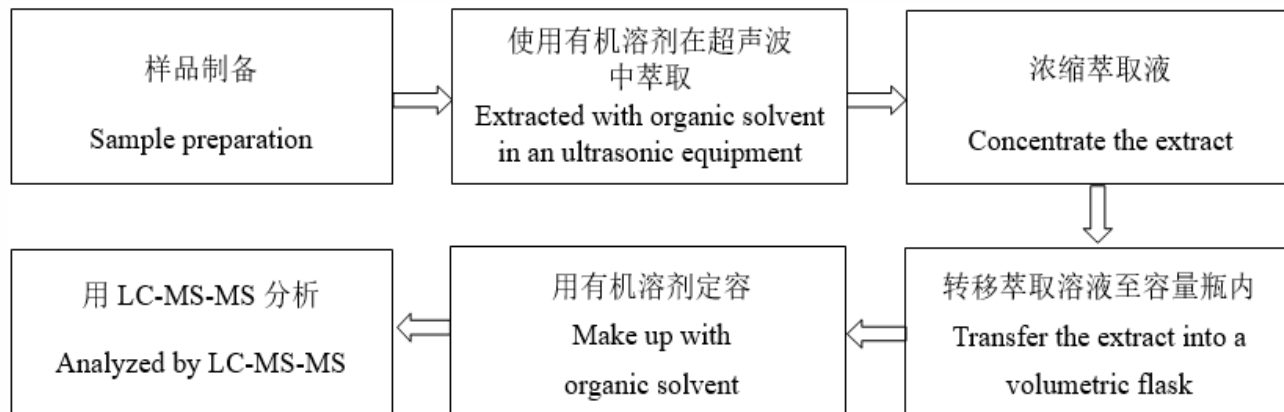
10. 中链氯化石蜡(MCCPs)

Middle Chain Chlorinated Paraffins (MCCPs)



11. 全氟辛酸(PFOA), 全氟辛烷磺酸(PFOS)

Perfluorooctanoic Acid(PFOA), Perfluorooctane Sulfonates(PFOS)



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样品图片 Photo(s) of the sample(s)



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. 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;
5. 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 ***

附录Appendix

客户参考信息Client Reference Information

Φ55mm、Φ51mm、Φ45mm、Φ38mm、Φ28mm、Φ25mm、Φ20mm

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



声明Statement:

附录内容由申请者提供，申请者应对其真实性负责，CTI未核实其真实性。

The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.