

检测报告 Test Report



报告编号 A2190023905101001ER1
Report No. A2190023905101001ER1

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申请单位 山东迪一电子科技有限公司/山东芯诺电子科技股份有限公司
Applicant SHANDONG DIYI ELECTRONIC SCIENCE AND TECHNOLOGY CO., LTD / SHANDONG XINNUO ELECTRONIC SCIENCE AND TECHNOLOGY CO.,LTD
地 址 山东省济宁市兖州经济开发区创业路 7 号/山东省济宁市兖州区颜店镇天齐庙村村西
Address NO. 7 CHUANGYE ROAD, ECONOMIC DEVELOPMENT ZONE, YANZHOU DISTRICT, JINING , SHANDONG PROVINCE, P.R.C./YAN DIAN ZHEN YANZHOU DISTRICT OF SHANDONG CITY OF JINING PROVINCE TIAN QI MIAO VILLAGE WEST

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 client

序号 No.	成品名称 Final Product Name	成品型号 Final Product Part No.	样品名称 Sample Name
001	二极管/三极管/整流桥 (Diode/Triode/Bridge)	R-1/A-405/DO-41/DO-15/DO-201AD/R-6/ D3K/KBP/GBU/GBJ/DBS/DBM/DBF/ MBF/MBS/MBM/ABS/ABF/SMA/SMAF/SMB/ SMBF/SMC/HBS/SOD-123FL/TO-277B/GBL/ KBL/KBJ/KBU/KBPC/GBPC/WOB/DFN/ LBF/LBS/SOT-23/SOT-89/SOT-223/SOT-323/ SOD-123/SOD-323/SOD-523/MELF/DO-35/ LL-34/LL-41/ITO-220/TO-220/TO-262/TO-263/ TO-251/TO-252/TO-3P/TO-126/TO-247/TO-92	芯片 (GPP & Triac) Chip (GPP & Triac)
002		芯片 (SKY & MOS) Chip (SKY & MOS)	
003		焊料 Solder	
004		铝线 Al Wire	
005		铜框架 Lead Frame	
006		环氧树脂成型材料 Epoxy Molding Compound	
007		镀层 Tin Plating	

样品接收日期 2019.01.29
Sample Received Date Jan. 29, 2019
样品检测日期 2019.01.29-2019.02.02
Testing Period Jan. 29, 2019 to Feb. 2, 2019
检测依据/检测结果/检测要求 请参见下页。
Test Method/Test Result(s)/ Test Requested Please refer to the following page(s).

主 检
Tested by

王东

审 核
Reviewed by

徐忠娟

批 准
Approved by

陈凯敏

日 期
Date

2019.02.14

陈凯敏
实验室经理 Lab Manager

No. R131271050

上海华测品标检测技术有限公司
Centre Testing International Pinbiao(Shanghai) Co., Ltd.

上海市浦东新区新金桥路 1996 号
No. 1996, Xinqinqiao Road, Pudong New District, Shanghai, China

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检测要求

1. 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, 铍(Be), 锑(Sb), 双酚 A (BP-A), 多环芳烃(PAHs), 氟(F), 氯(Cl), 溴(Br), 碘(I)进行测试。
2. 根据客户要求, 对所提交样品中的持久性有机污染物(POPs)进行测试。

Test Requested

1. As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates, Beryllium(Be), Antimony(Sb), Bisphenol-A (BP-A), Polycyclic Aromatic Hydrocarbons (PAHs), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I) in the submitted sample(s).
2. As specified by client, to test Persistent Organic Pollutants (POPs) in the submitted sample(s).

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1.1 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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1.2 检测依据 Test Method

测试项目 Tested 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 62321-7-2:2017 和/或 IEC 62321-5:2013 测试总铬含量 IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
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
铍 Beryllium(Be)	参考 US EPA 3052:1996 & US EPA 6010D:2014 Refer to US EPA 3052:1996 & US EPA 6010D:2014	ICP-OES
	参考 US EPA 3050B:1996 & US EPA 6010D:2014 Refer to US EPA 3050B:1996 & US EPA 6010D:2014	
锑 Antimony(Sb)	参考 US EPA 3052:1996 & US EPA 6010D:2014 Refer to US EPA 3052:1996 & US EPA 6010D:2014	ICP-OES
	参考 US EPA 3050B:1996 & US EPA 6010D:2014 Refer to US EPA 3050B:1996 & US EPA 6010D:2014	
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 (DNOP, DINP, DIDP, DMP, DEP, DPP, DCHP, DNP, DNHP, DMEP, DIPP, DPhP, NIPP, DHNUP, DIHP, BADP)	参考 EN 14372:2004(E) Refer to EN 14372:2004(E)	GC-MS
双酚 A (BP-A) Bisphenol-A (BP-A)	参考 US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
多环芳烃 Polycyclic Aromatic Hydrocarbons (PAHs)	AfPS GS 2014:01 PAK	GC-MS

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1.3 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
	001	002	003	004		
铅 Lead (Pb)* ³	63240 mg/kg* ¹	N.D.	819353 mg/kg* ²	N.D.	2 mg/kg	1000 mg/kg
镉 Cadmium (Cd) * ³	N.D.	N.D.	N.D.	N.D.	2 mg/kg	100 mg/kg
汞 Mercury (Hg) * ³	N.D.	N.D.	N.D.	N.D.	2 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI)) * ³	N.D.	N.D.	N.D.	—	8 mg/kg	1000 mg/kg
	—	—	—	N.D.▼	0.10 µg/cm ² (LOQ)	

测试项目 Tested Item(s)	结果 Result			方法检出限 MDL	限值 Limit
	005	006	007		
铅 Lead (Pb) * ³	11 mg/kg	N.D.	23 mg/kg	2 mg/kg	1000 mg/kg
镉 Cadmium (Cd) * ³	N.D.	N.D.	N.D.	2 mg/kg	100 mg/kg
汞 Mercury (Hg) * ³	N.D.	N.D.	N.D.	2 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium (Cr(VI)) * ³	—	N.D.	—	8 mg/kg	1000 mg/kg
	N.D.▼	—	N.D.▼	0.10 µg/cm ² (LOQ)	

测试项目 Tested Item(s)	结果 Result				方法检出限 MDL	限值 Limit
	001	002	003	006		
多溴联苯 Polybrominated Biphenyls(PBBs) *³						
一溴联苯 Monobromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
三溴联苯 Tribromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
四溴联苯 Tetrabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
五溴联苯 Pentabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
六溴联苯 Hexabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
七溴联苯 Heptabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
八溴联苯 Octabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
九溴联苯 Nonabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
十溴联苯 Decabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	

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测试项目 Tested Item(s)	结果 Result				方法检出限 MDL	限值 Limit
	001	002	003	006		
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs) *³						
一溴二苯醚 Monobromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	1000 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
三溴二苯醚 Tribromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
五溴二苯醚 Pentabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
六溴二苯醚 Hexabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
七溴二苯醚 Heptabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
八溴二苯醚 Octabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
九溴二苯醚 Nonabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	
十溴二苯醚 Decabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	

测试项目 Tested Item(s)	结果 Result				方法检出限 MDL	限值 Limit
	001	002	003	006		
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP) *³						
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	N.D.	N.D.	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.	N.D.	N.D.	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.	N.D.	N.D.	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.	N.D.	N.D.	N.D.	50 mg/kg	1000 mg/kg

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测试项目 Tested Item(s)	结果 Result				方法检出限 MDL
	001	002	003	006	
铍 Beryllium (Be) * ³	N.D.	N.D.	N.D.	N.D.	10 mg/kg

测试项目 Tested Item(s)	结果 Result			方法检出限 MDL
	004	005	007	
铍 Beryllium (Be)	N.D.	N.D.	N.D.	10 mg/kg

测试项目 Tested Item(s)	结果 Result						方法检出限 MDL
	001	002	003	004	005	006	
锑 Antimony (Sb) * ³	N.D.	N.D.	N.D.	N.D.	N.D.	4608 mg/kg	10 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	007	
锑 Antimony (Sb)	N.D.	10 mg/kg

测试项目 Tested Item(s)	结果 Result				方法检出限 MDL
	001	002	003	006	
氟 Fluorine (F) * ³	N.D.	N.D.	N.D.	N.D.	10 mg/kg
氯 Chlorine (Cl) * ³	N.D.	N.D.	N.D.	150 mg/kg	10 mg/kg
溴 Bromine (Br) * ³	N.D.	N.D.	100 mg/kg	5815 mg/kg	10 mg/kg
碘 Iodine (I) * ³	N.D.	N.D.	N.D.	N.D.	10 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	006	
双酚 A (BP-A) Bisphenol-A (BP-A) * ³	N.D.	1 mg/kg

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可接触的表面材料中 PAHs 含量限值(mg/kg)(按风险分析的结果分类)

Limits for PAHs content (mg/kg)for material of (grip) surfaces, which are to be categorized on account of the results of the risk analysis.

参数 Parameters	一类 Category 1	二类 Category 2		三类 Category 3	
	可放入口中的材料，或预期和皮肤长时间接触的玩具材料（超过 30 秒） Materials intended to be put in the mouth or materials of toys with foreseeable long-term skin contact(longer than 30 seconds)	未包含在第一类材料中，预期和皮肤接触时间超过 30 秒（长时间接触），或者和皮肤反复短时间接触的材料 Materials not covered by category 1, with foreseeable skin contact for longer than 30 seconds (long-term skin contact) or repeated short-term skin contact #	2009/48/EC 范围内的玩具 Toys covered by Directive 2009/48/EC	其他类产品 Other products	2009/48/EC 范围内的玩具 Toys covered by Directive 2009/48/EC
苯并[a]芘 Benzo[a]pyrene	<0.2	<0.2	<0.5	<0.5	<1
苯并[e]芘 Benzo[e]pyrene	<0.2	<0.2	<0.5	<0.5	<1
苯并[a]蒽 Benzo[a]anthracene	<0.2	<0.2	<0.5	<0.5	<1

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苯并[b]荧蒽 Benzo[b]fluoranthene	<0.2	<0.2	<0.5	<0.5	<1
苯并[j]荧蒽 Benzo[j]fluoranthene	<0.2	<0.2	<0.5	<0.5	<1
苯并[k]荧蒽 Benzo[k]fluoranthene	<0.2	<0.2	<0.5	<0.5	<1
蒽Chrysene	<0.2	<0.2	<0.5	<0.5	<1
二苯并[a,h]蒽 Dibenz[a,h]anthracene	<0.2	<0.2	<0.5	<0.5	<1
苯并[g,h,i]芘 Benzo[g,h,i]perylene	<0.2	<0.2	<0.5	<0.5	<1
茚并[1,2,3-cd]芘 Indenol[1,2,3-cd]pyrene	<0.2	<0.2	<0.5	<0.5	<1
芘烯,芘,芴,菲,蒽,荧蒽,芘 Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene	总量<1 <1 Sum	总量<5 <5 Sum	总量<10 <10 Sum	总量<20 <20 Sum	总量<50 <50Sum
萘 Naphthalene	<1	<2		<10	
18PAHs 总量 Sum 18 PAHs	<1	<5	<10	<20	<50

“短期重复接触皮肤” 来自REACH法规附录XVII第50项的修订案(法规 (EU) No.1272/2013)

Formulation “of repeated short-term skin contact” REACH Annex XVII No. 50 supplement
(REGULATION (EU) No.1272/2013)

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	006	
多环芳烃 Polycyclic Aromatic Hydrocarbons(PAHs)*3		
萘 Naphthalene	N.D.	0.2 mg/kg
茚烯 Acenaphthylene	N.D.	0.2 mg/kg
茚 Acenaphthene	N.D.	0.2 mg/kg
芴 Fluorene	N.D.	0.2 mg/kg
菲 Phenanthrene	N.D.	0.2 mg/kg
蒽 Anthracene	N.D.	0.2 mg/kg
荧蒽 Fluoranthene	N.D.	0.2 mg/kg
芘 Pyrene	N.D.	0.2 mg/kg
苯并[a]蒽 Benzo[a]anthracene	N.D.	0.2 mg/kg
蒽 Chrysene	N.D.	0.2 mg/kg
苯并[b]荧蒽 Benzo[b]fluoranthene	N.D.	0.2 mg/kg
苯并[k]荧蒽 Benzo[k]fluoranthene	N.D.	0.2 mg/kg
苯并[a]芘 Benzo[a]pyrene	N.D.	0.2 mg/kg
茚并[1,2,3-cd]芘 Indeno[1,2,3-cd]pyrene	N.D.	0.2 mg/kg
二苯并[a,h]蒽 Dibenzo[a,h]anthracene	N.D.	0.2 mg/kg
苯并[g,h,i]芘 Benzo[g,h,i]perylene	N.D.	0.2 mg/kg
苯并[j]荧蒽 Benzo[j]fluoranthene	N.D.	0.2 mg/kg
苯并[e]芘 Benzo[e]pyrene	N.D.	0.2 mg/kg
茚烯,茚,芴,菲,蒽,荧蒽,芘总量, Sum (Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene)	N.D.	/
18PAHs 总量 Sum 18 PAHs	N.D.	/

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邻苯二甲酸酯 Phthalates*³					
邻苯二甲酸二正辛酯 Di-n-octyl phthalate (DNOP) CAS#:117-84-0	N.D.	N.D.	N.D.	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.	N.D.	N.D.	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.	N.D.	N.D.	N.D.	50 mg/kg
邻苯二甲酸二甲酯 Dimethyl phthalate (DMP) CAS#:131-11-3	N.D.	N.D.	N.D.	N.D.	50 mg/kg
邻苯二甲酸二乙酯 Diethyl phthalate (DEP) CAS#:84-66-2	N.D.	N.D.	N.D.	N.D.	50 mg/kg
邻苯二甲酸二戊酯 Dipentyl phthalate (DPP) CAS#:131-18-0	N.D.	N.D.	N.D.	N.D.	50 mg/kg
邻苯二甲酸二环己酯 Dicyclohexyl phthalate (DCHP) CAS#:84-61-7	N.D.	N.D.	N.D.	N.D.	50 mg/kg
邻苯二甲酸二壬酯 Dinonyl phthalate (DNP) CAS#:84-76-4	N.D.	N.D.	N.D.	N.D.	50 mg/kg
邻苯二甲酸二己酯 Di-n-hexyl phthalate (DNHP) CAS#:84-75-3	N.D.	N.D.	N.D.	N.D.	50 mg/kg
邻苯二甲酸二(2-甲氧基)乙酯 Bis(2-methoxyethyl) phthalate (DMEP) CAS#:117-82-8	N.D.	N.D.	N.D.	N.D.	50 mg/kg
邻苯二甲酸二异戊酯 Diisopentylphthalate (DIPP) CAS#:605-50-5	N.D.	N.D.	N.D.	N.D.	50 mg/kg
邻苯二甲酸二苯酯 Diphenyl phthalate (DPhP) CAS#:84-62-8	N.D.	N.D.	N.D.	N.D.	50 mg/kg
邻苯二甲酸正戊基异戊基酯 N-Pentyl-isopentyl phthalate (NIPP) CAS#:776297-69-9	N.D.	N.D.	N.D.	N.D.	100 mg/kg
*邻苯二甲酸烷基酯(C7-11 支型和线性结构) 1,2-Benzenedicarboxylic acid, di-(C7-11)-branched and linear alkyl esters (DHNUP) CAS#:68515-42-4	N.D.	N.D.	N.D.	N.D.	100 mg/kg
*邻苯二甲酸烷基酯(C6-8 支型结构,C7 富集) 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP) CAS#:71888-89-6	N.D.	N.D.	N.D.	N.D.	100 mg/kg
*支链和直链 1,2-苯二羧二戊酯 1,2-Benzenedicarboxylic acid, dipentylester, branched and linear (BADP) CAS#:84777-06-0	N.D.	N.D.	N.D.	N.D.	100 mg/kg

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测试样品/部位描述

Tested Sample/Part Description

- 001 芯片 Chip
- 002 芯片 Chip
- 003 灰色膏体 Grey paste
- 004 银色金属丝 Silvery metal wire
- 005 铜色金属 Cupreous metal
- 006 黑色固体 Black solid
- 007 银色金属 Silvery metal

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备注: 对于检测铅, 镉, 汞, 铍, 锑之样品已完全溶解。

-*=由于这些物质是 UVCB 物质(未知成分或可变成成分的, 复杂反应物或生物材料的物质), 由各种不同的成分组成, 所以这些物质的测试结果是由选定的具有代表性的物质的主要组成成分的测试结果换算而来的。

-*¹=根据客户声明, 样品涉及欧盟 RoHS 指令 2011/65/EU 豁免项第 7(c)-I 条: 电子电气元件的玻璃或陶瓷中的铅或玻璃或陶瓷基混合物中的铅, 电容器的介电陶瓷除外, 如压电陶瓷装置。

-*²=测试结果仅供参考。根据客户声明, 样品中的铅来自于高温融化焊料。高温融化焊料中的铅(即铅含量大于或等于 85% 的铅基合金), 根据欧盟指令 2011/65/EU 附录 III 豁免项第 7(a) 条, 是符合豁免的。

-N.D. = 未检出 (小于方法检出限或定量限)

-mg/kg = ppm = 百万分之一

-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。

-*³=此项目的测试数据引自于报告 A2190009068101001E。

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

-*=In view of the substances are established as UVCB substances

(substances of unknown or variable composition, complex reaction products or biological materials) consisting of different and variable constituents, the test results are calculated based on the main constituents of the representative compounds for substances.

-*¹= According to the client's statement, the material of the sample(s) fall into exemption items 7(c)-I according to EU Directive 2011/65/EU: Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

-*²= Testing results are only used for reference.

According to the client's statement, lead mainly comes from the high melting temperature type solders. Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) is exempted from the restriction, with reference to EU Directive 2011/65/EU annex III Exemption Applications 7(a).

-MDL = Method Detection Limit

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

-mg/kg = ppm = parts per million

-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.

-*³=The test result(s) is/are presented in reference to the result(s) that reported in A2190009068101001E.

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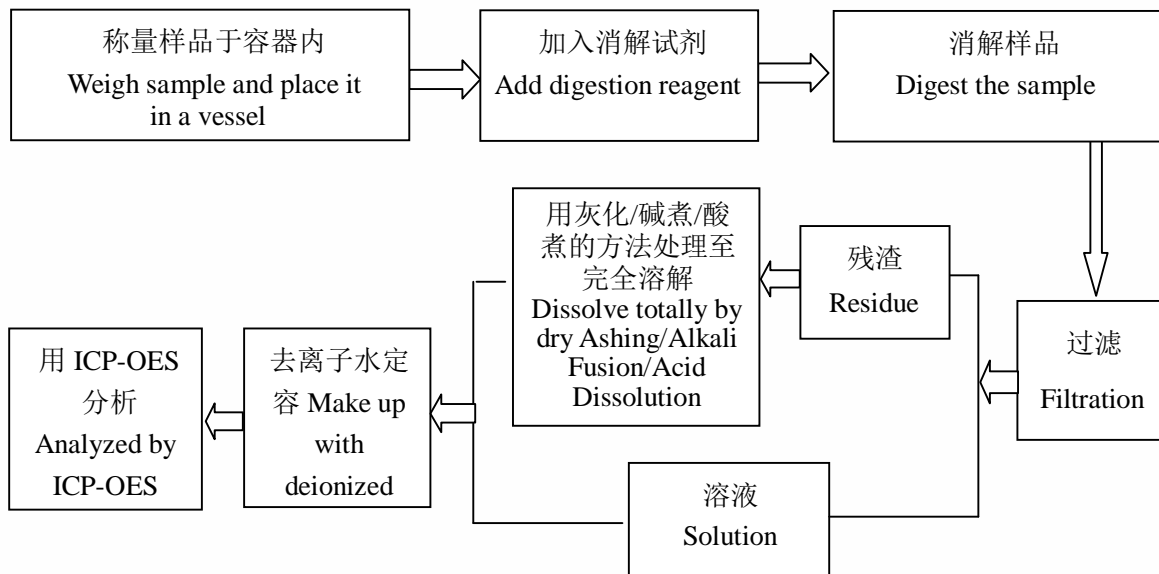
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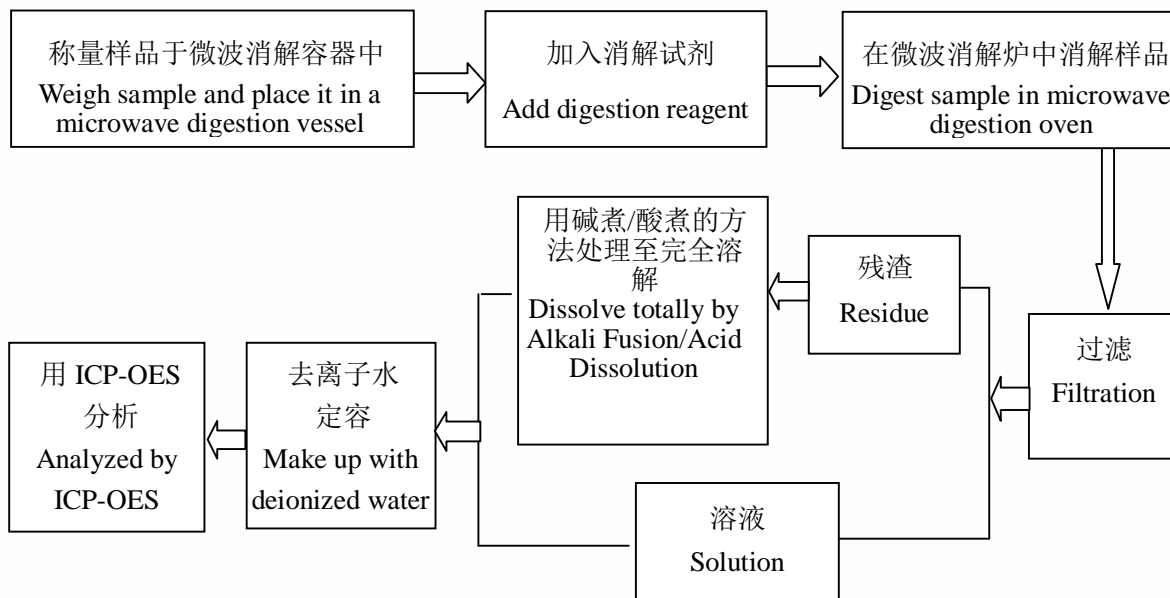
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1.4 检测流程 Test Process

1.4.1. 铅 Lead(Pb), 镉 Cadmium(Cd), 铬 Chromium(Cr)



1.4.2. 汞 Mercury(Hg)



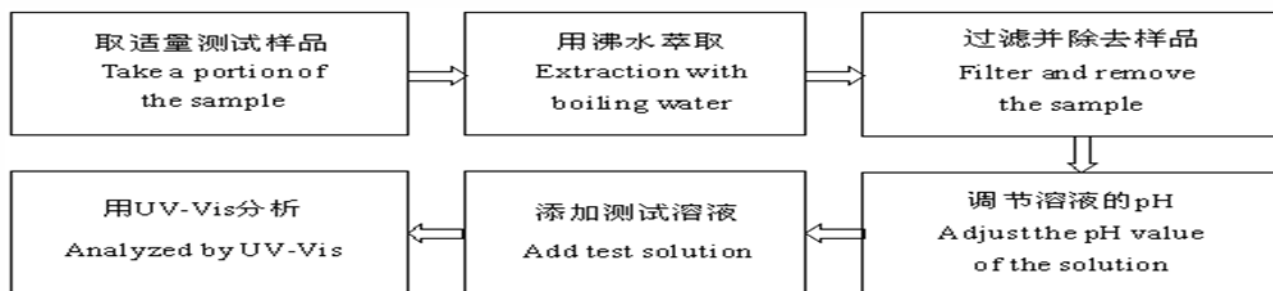
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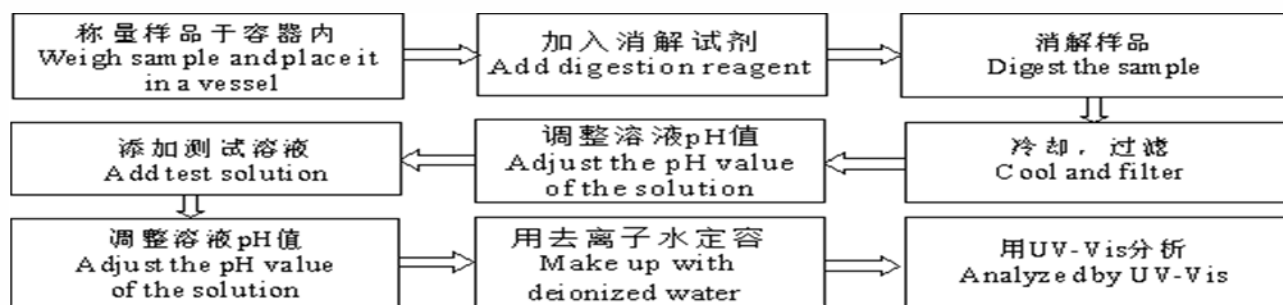
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1.4.3. 六价铬 Hexavalent Chromium(Cr(VI))

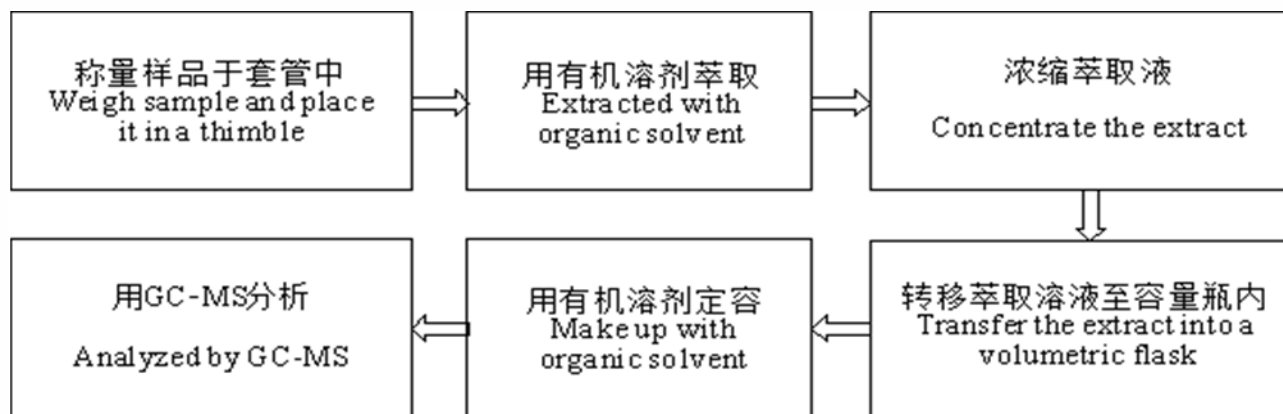
(1) IEC 62321-7-1:2015



(2) IEC 62321-7-2:2017



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

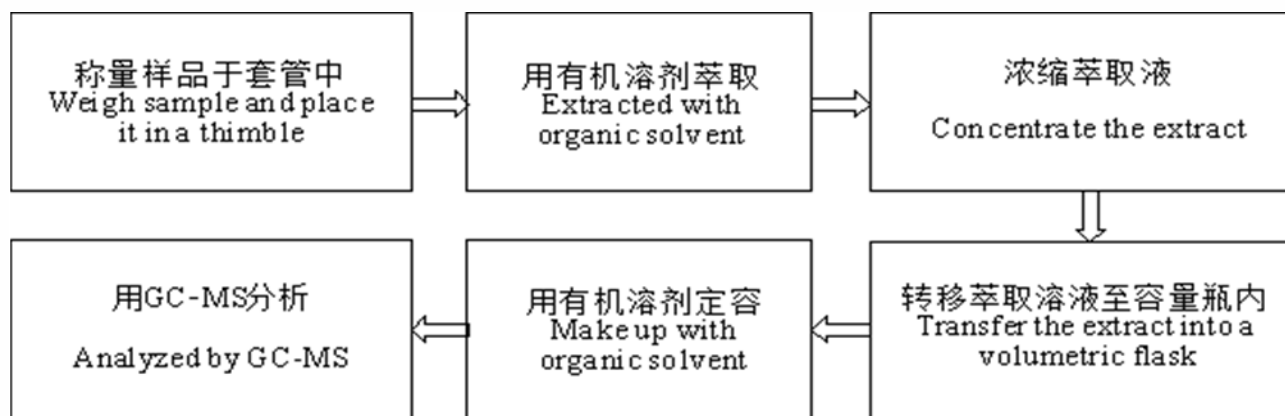


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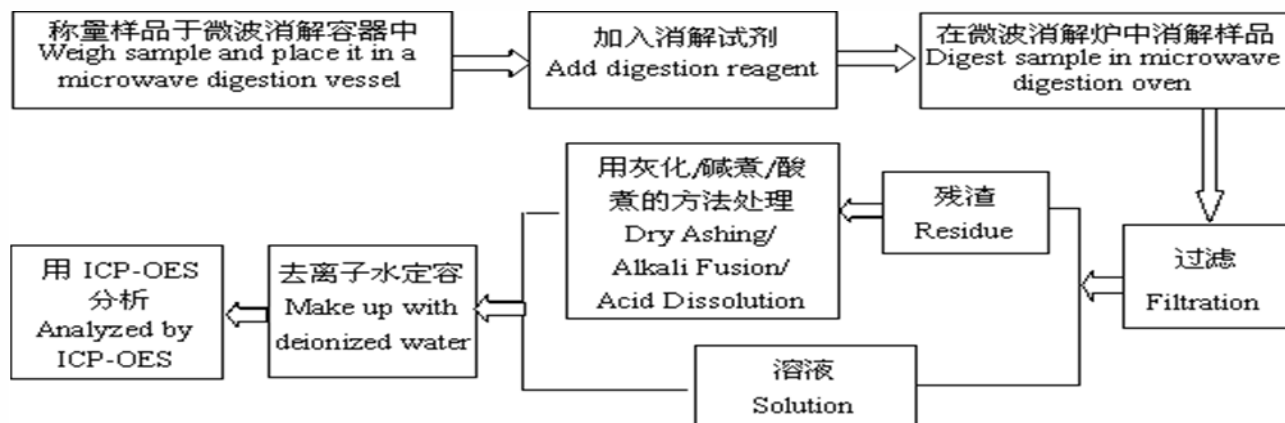
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1.4.5. 邻苯二甲酸酯 Phthalates

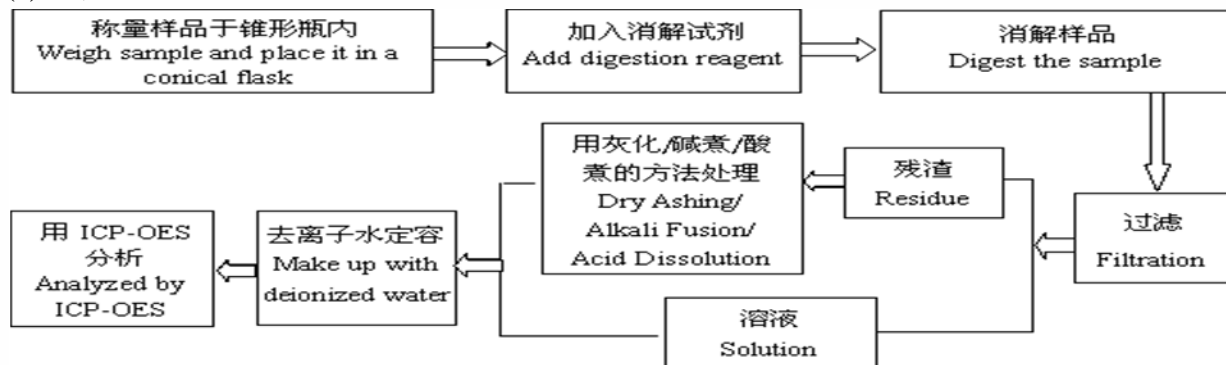


1.4.6. 铍 Beryllium(Be)

(1)参考 Refer to US EPA 3052:1996 & US EPA 6010D:2014



(2)参考 Refer to US EPA 3050B:1996 & US EPA 6010D:2014



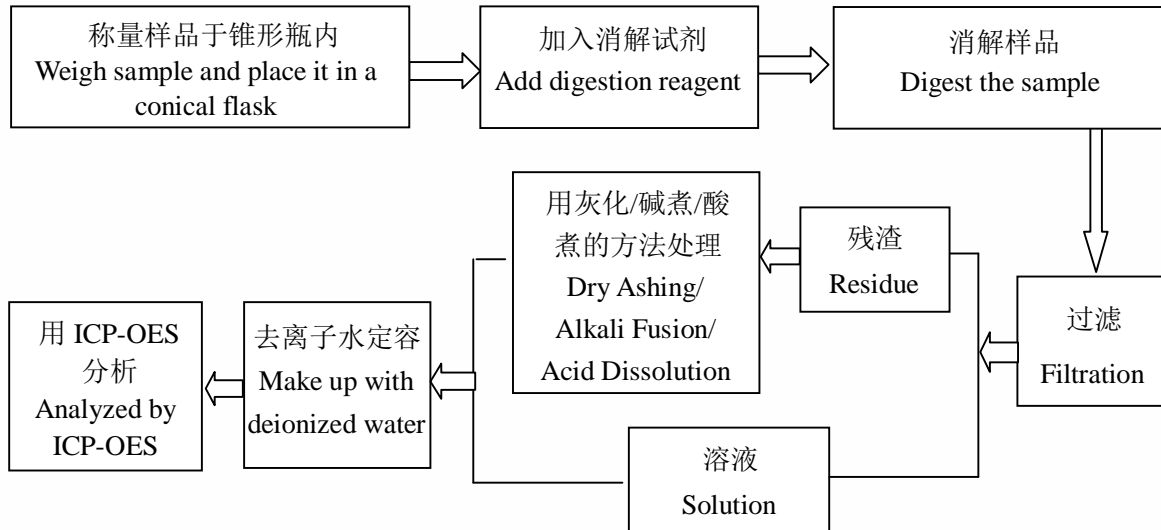
检测报告 Test Report

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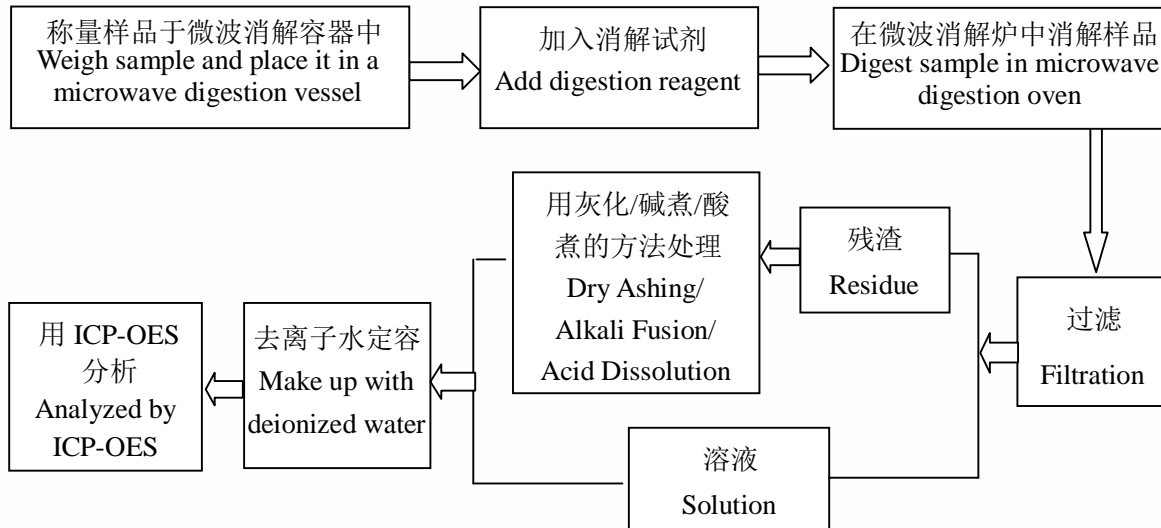
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1.4.7 锑 Antimony(Sb)

(1)参考 Refer to US EPA 3050B:1996 & US EPA 6010D:2014



(2)参考 Refer to US EPA 3052:1996 & US EPA 6010D:2014

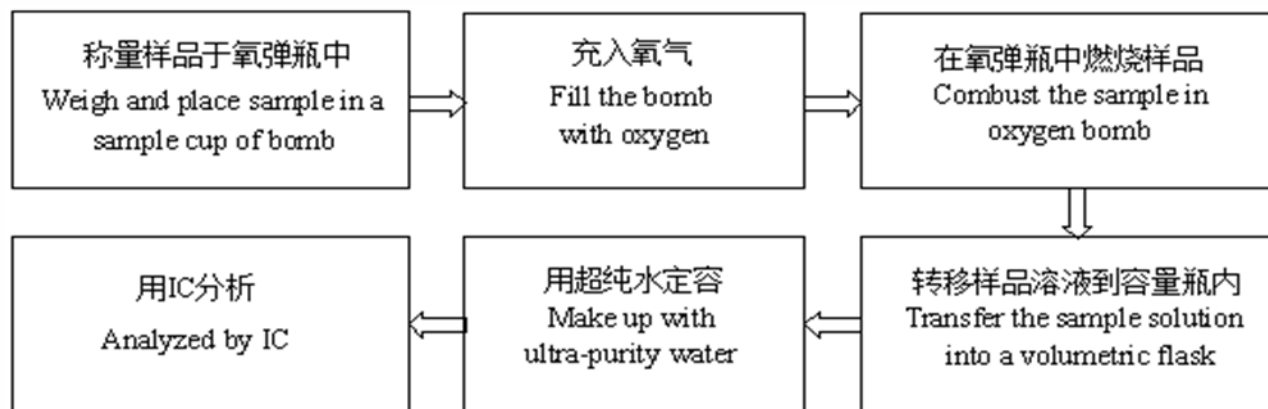


检测报告 Test Report

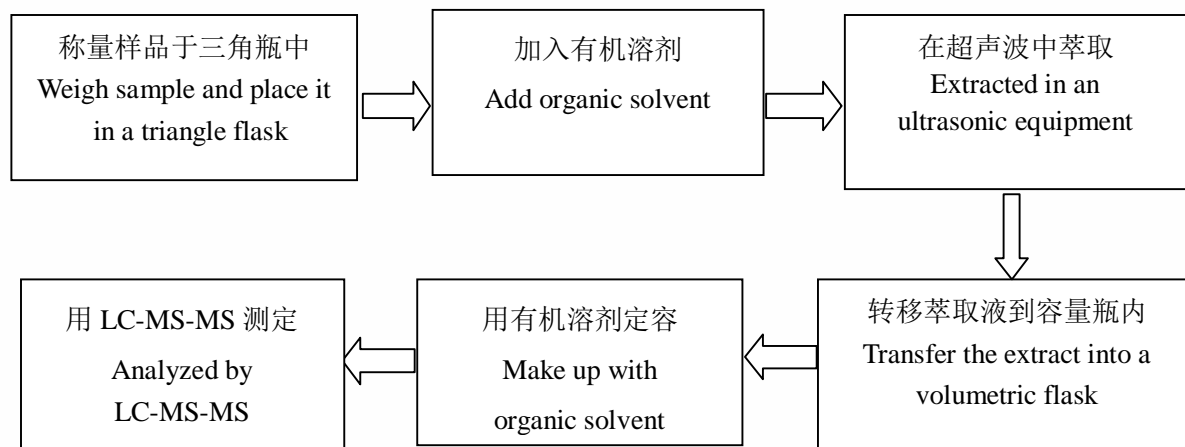
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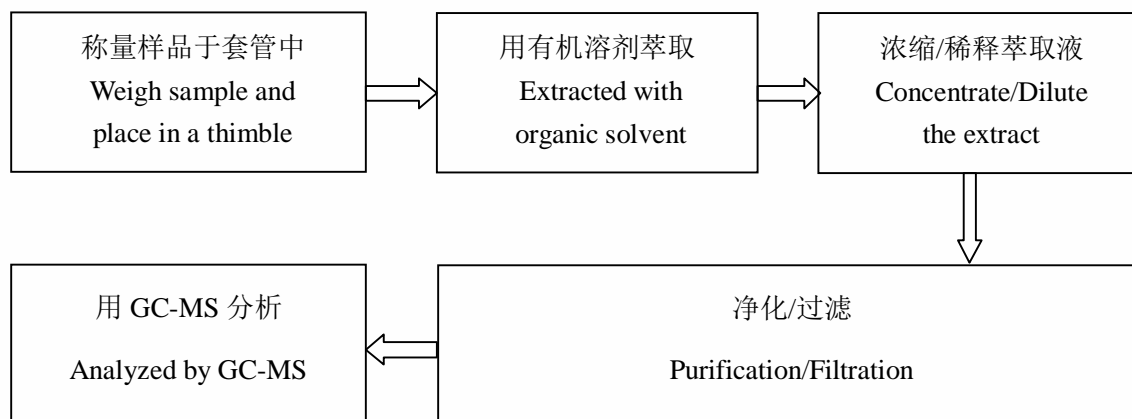
1.4.8. 氟 Fluorine (F), 氯 Chlorine (Cl), 溴 Bromine (Br), 碘 Iodine (I)



1.4.9 双酚 A (BP-A) Bisphenol-A (BP-A)



1.4.10 多环芳烃 Polycyclic Aromatic Hydrocarbons (PAHs)



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2.1 检测结果摘要 Summary of Test Result(s)		
测试项目 Test Item(s)	检验依据 Test Request	结论 Conclusion
持久性有机污染物(POPs) Persistent Organic Pollutants (POPs) *³		
四溴二苯醚 Tetrabromodiphenyl ether	欧盟法规(EC) No 850/2004 及其修订案(EU) No 757/2010 Regulation (EC) No 850/2004 of the European Parliament and of the Council with amendment (EU) No 757/2010	符合 PASS
五溴二苯醚 Pentabromodiphenyl ether		符合 PASS
六溴二苯醚 Hexabromodiphenyl ether		符合 PASS
七溴二苯醚 Heptabromodiphenyl ether		符合 PASS
全氟辛烷磺酸及其盐类(PFOS) Perfluorooctane sulfonic acid, its salts(PFOS)		符合 PASS
六氯苯(HCB) Hexachlorobenzene (HCB)		符合 PASS
五氯苯 Pentachlorobenzene		符合 PASS
多氯联苯 (PCB) Polychlorinated Biphenyls (PCB)		符合 PASS
灭蚁灵 Mirex		符合 PASS
六溴联苯 Hexabromobiphenyl		符合 PASS
硫丹 Endosulfan	欧盟法规(EC) No 850/2004 及其修订案(EU) No 519/2012 Regulation (EC) No 850/2004 of the European Parliament and of the Council with amendment (EU) No 519/2012	符合 PASS
六氯丁二烯 Hexachlorobutadiene		符合 PASS
多氯化萘 (PCN) Polychlorinated naphthalene (PCN)		符合 PASS
短链氯化石蜡(SCCPs) AlkanesC10-C13 chloro (short-chain chlorinated paraffins) (SCCPs)	欧盟法规(EC) No 850/2004 及其修订案(EU) No 519/2012 & (EU) 2015/2030 Regulation (EC) No 850/2004 of the European Parliament and of the Council with amendments(EU) No 519/2012&(EU)2015/2030	符合 PASS
六溴环十二烷(HBCDD) Hexabromocyclododecane (HBCDD)	欧盟法规(EC) No 850/2004 及其修订案(EU)2016/293 Regulation (EC) No 850/2004 of the European Parliament and of the Council with amendment (EU)2016/293	符合 PASS
*****详细结果, 请见下页***** ***** For Further Details, Please Refer To the Following Page(s)*****		

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2.2 检测依据 Test Method

测试项目 Tested Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
四溴二苯醚 Tetrabromodiphenyl ether	参考 refer to US EPA 3550C:2007 & US EPA 8270E:2017	GC-MS
五溴二苯醚 Pentabromodiphenyl ether		
六溴二苯醚 Hexabromodiphenyl ether		
七溴二苯醚 Heptabromodiphenyl ether		
全氟辛烷磺酸及其盐类(PFOS) Perfluorooctane sulfonic acid, its salts(PFOS)	参考 refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
六氯苯(HCB) Hexachlorobenzene (HCB)	参考 refer to US EPA 3540C:1996 & US EPA 8270D:2014	GC-MS
五氯苯 Pentachlorobenzene		
多氯联苯(PCB) Polychlorinated Biphenyls (PCB)		
灭蚁灵 Mirex		
六溴联苯 Hexabromobiphenyl	参考 refer to US EPA 3540C:1996 & US EPA 8270D:2014	GC-MS
硫丹 Endosulfan	参考 refer to US EPA 3550C:2007 & US EPA 8270D:2014	
六氯丁二烯 Hexachlorobutadiene		
多氯化萘(PCN) Polychlorinated naphthalene (PCN)	参考 refer to US EPA 3550C:2007 & US EPA 8270E:2017	
短链氯化石蜡(SCCPs) AlkanesC10-C13 chloro (short-chain chlorinated paraffins) (SCCPs)	参考 refer to US EPA 3540C:1996 & US EPA 8270D:2014	GC-MS(NCI)
六溴环十二烷(HBCDD) Hexabromocyclododecane (HBCDD)	参考 refer to US EPA 3540C:1996 & US EPA 8270D:2014	GC-MS

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2.3 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
	001	002	003	006		
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	10 mg/kg
五溴二苯醚 Pentabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	10 mg/kg
六溴二苯醚 Hexabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	10 mg/kg
七溴二苯醚 Heptabromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	5 mg/kg	10 mg/kg
全氟辛烷磺酸及其盐类(PFOS) Perfluorooctane sulfonic acid, its salts(PFOS)	N.D.	N.D.	N.D.	N.D.	5 mg/kg	1000 mg/kg
六氯苯 (HCB) Hexachlorobenzene (HCB)	N.D.	N.D.	N.D.	N.D.	50 mg/kg	禁用 Prohibition
五氯苯 Pentachlorobenzene	N.D.	N.D.	N.D.	N.D.	50 mg/kg	禁用 Prohibition
灭蚁灵 Mirex	N.D.	N.D.	N.D.	N.D.	5 mg/kg	禁用 Prohibition
六溴联苯 Hexabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5 mg/kg	禁用 Prohibition
硫丹 Endosulfan	N.D.	N.D.	N.D.	N.D.	50 mg/kg	禁用 Prohibition
六氯丁二烯 Hexachlorobutadiene	N.D.	N.D.	N.D.	N.D.	5 mg/kg	禁用 Prohibition
多氯化萘 (PCN) Polychlorinated naphthalene (PCN)	N.D.	N.D.	N.D.	N.D.	5 mg/kg	禁用 Prohibition
短链氯化石蜡(SCCPs) AlkanesC10-C13 chloro (short-chain chlorinated paraffins) (SCCPs)	N.D.	N.D.	N.D.	N.D.	100 mg/kg	10000 mg/kg
六溴环十二烷(HBCDD) Hexabromocyclododecane (HBCDD)	N.D.	N.D.	N.D.	N.D.	5 mg/kg	100 mg/kg

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测试项目 Tested Item(s)	结果 Result				方法检出限 MDL	限值 Limit
	001	002	003	006		
多氯联苯(PCBs) Poly chlorinated Biphenyls(PCBs)						
一氯联苯 Monochlorobiphenyl	N.D.	N.D.	N.D.	N.D.	5mg/kg	禁用 Prohibition
二氯联苯 Dichlorobiphenyl	N.D.	N.D.	N.D.	N.D.	5mg/kg	
三氯联苯 Trichlorobiphenyl	N.D.	N.D.	N.D.	N.D.	5mg/kg	
四氯联苯 Tetrachlorobiphenyl	N.D.	N.D.	N.D.	N.D.	5mg/kg	
五氯联苯 Pentachlorobiphenyl	N.D.	N.D.	N.D.	N.D.	5mg/kg	
六氯联苯 Hexachlorobiphenyl	N.D.	N.D.	N.D.	N.D.	5mg/kg	
七氯联苯 Heptachlorobiphenyl	N.D.	N.D.	N.D.	N.D.	5mg/kg	
八氯联苯 Octachlorobiphenyl	N.D.	N.D.	N.D.	N.D.	5mg/kg	
九氯联苯 Nonachlorobiphenyl	N.D.	N.D.	N.D.	N.D.	5mg/kg	
十氯联苯 Decachlorobiphenyl	N.D.	N.D.	N.D.	N.D.	5mg/kg	

测试样品/部位描述

Tested Sample/Part Description

- 001 芯片 Chip
- 002 芯片 Chip
- 003 灰色膏体 Grey paste
- 004 银色金属丝 Silvery metal wire
- 005 铜色金属 Cupreous metal
- 006 黑色固体 Black solid
- 007 银色金属 Silvery metal

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备注: -N.D. = 未检出 (小于方法检出限)
-mg/kg = ppm = 百万分之一
-*³=此项目的测试数据引自于报告 A2190009068101001E。

Remark: -MDL = Method Detection Limit
-N.D. = Not Detected (<MDL or LOQ)
-mg/kg = ppm = parts per million
-*³=The test result(s) is/are presented in reference to the result(s) that reported in A2190009068101001E.

注释: 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。
本报告于原报告(报告编号 A2190023905101001E)基础上增加了“结论/限值”。本报告替换原报告 A2190023905101001E, 自本报告签发之日起, 原报告 A2190023905101001E 作废。

Note: The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.
This testing report added “Conclusion/ Limit” based on the original report of No. A2190023905101001E. This testing report displaces the original one which was invalid since the date of this testing report released.

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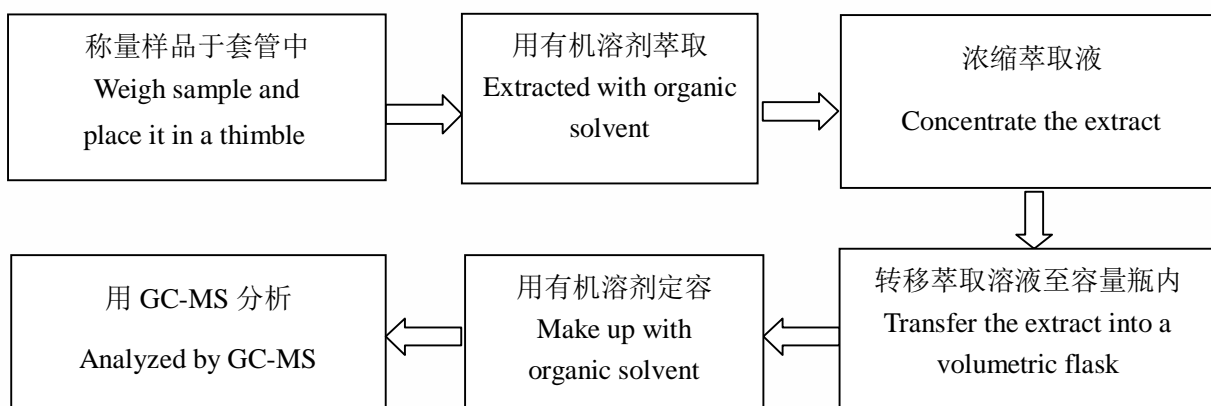
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2.4 检测流程 Test Process

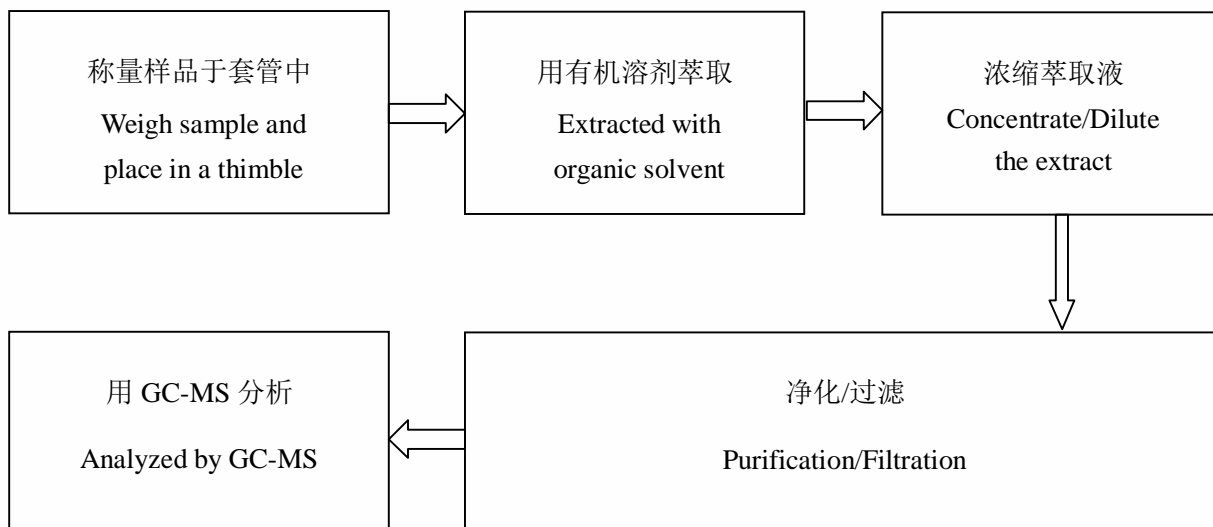
2.4.1. 四溴二苯醚, 五溴二苯醚, 六溴二苯醚, 七溴二苯醚, 多氯联苯(PCB), 灭蚁灵, 六溴联苯, 多氯化萘(PCN), 六溴环十二烷(HBCDD)

Tetrabromodiphenyl ether, Pentabromodiphenyl ether, Hexabromodiphenyl ether,

Heptabromodiphenyl ether, Polychlorinated Biphenyls (PCB), Mirex, Hexabromobiphenyl, Polychlorinated naphthalene (PCN), Hexabromocyclododecane (HBCDD)



2.4.2. 六氯苯(HCB), 五氯苯, 硫丹, 六氯丁二烯 Hexachlorobenzene (HCB), Pentachlorobenzene, Endosulfan, Hexachlorobutadiene



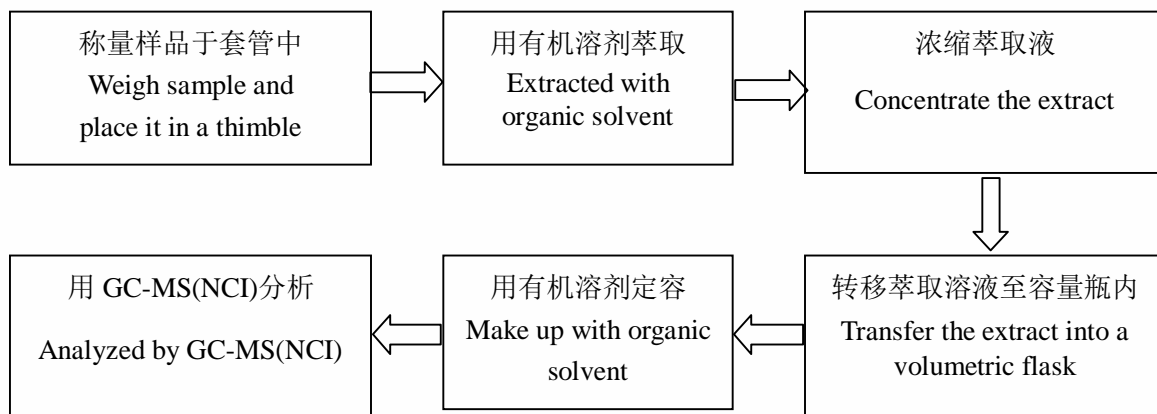
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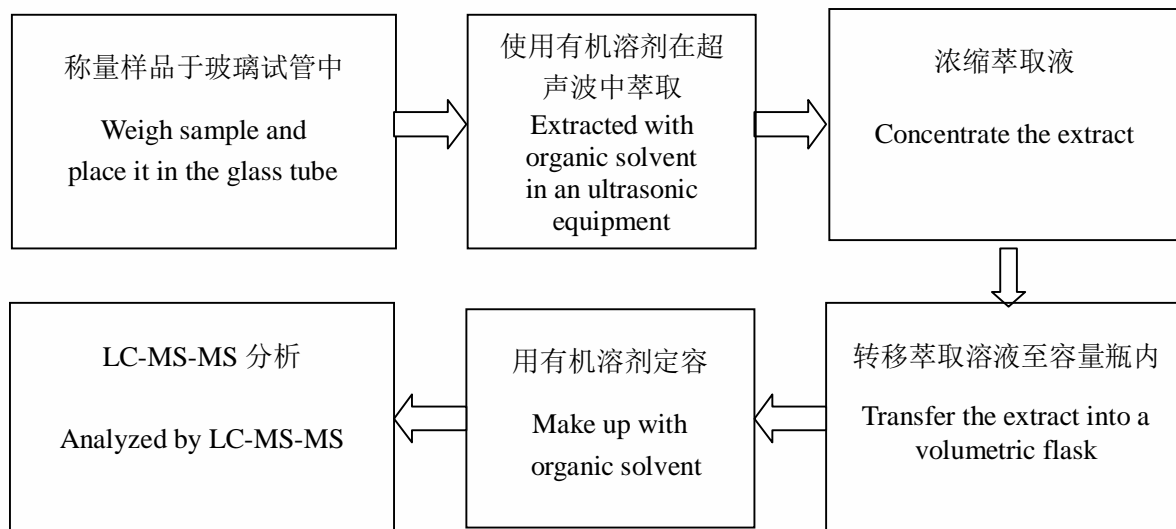
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2.4.3. 短链氯化石蜡(SCCPs)AlkanesC10-C13 chloro(short-chain chlorinated paraffins) (SCCPs)



2.4.4. 全氟辛烷磺酸及其盐类(PFOS) Perfluorooctane sulfonic acid, its salts(PFOS)



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样品图片

Photo(s) of the sample(s)

成品 Final Product

001



002

003



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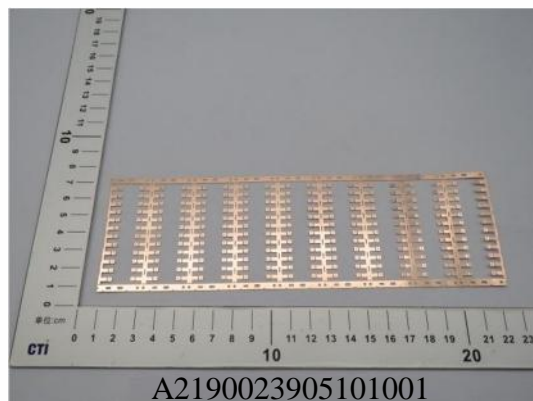
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006



007



*** 报告结束 ***
*** End of Report ***

声明 Statement:

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