



检测报告

Test Report

报告编号 A226015693110100101E
Report No. A226015693110100101E

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报告抬头公司名称 广东纽航电子科技有限公司
Company Name GUANGDONG NIUHANG ELECTRONIC TECHNOLOGY CO., LTD
shown on Report
地址 广东省东莞市东城街道樟村大园路 3 号 1 栋 301 室
Address 3RD FLOOR.BUILDING 1, NO.3 DAYUAN ROAD, ZHANGCUN.DONGCHENG STREET, DONGGUAN CITY, GUANGDONG PROVINCE

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	GPP 芯片
Sample Name	GPP CHIP
样品接收日期	2026.03.06
Sample Received Date	Mar. 6, 2026
样品检测日期	2026.03.06-2026.03.11
Testing Period	Mar. 6, 2026 to Mar. 11, 2026

测试内容 Test Conducted:

根据客户的申请要求，具体要求详见下一页。

As requested by the applicant. For details refer to next page(s).



批准
袁辉龙

袁辉龙

授权签字人 Lab Authorized Signatory

日期
Date

2026.08.24

No. R465021524

宁波市华测检测技术有限公司

Centre Testing International (Ningbo) Co., Ltd.

浙江省宁波高新区菁华路 76 号厂区东首第一、二层

1-2F, Eastern Factory, No.76, Jinghua Road, High-Tech Zone, Ningbo, Zhejiang, China

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测试摘要 Executive Summary:

测试要求

TEST REQUEST

1. 客户要求

Client's requirement

- 全氟己基磺酸(PFHxS)及其盐和相关物质

Perfluorohexane-1-sulphonic acid (PFHxS) and its salts & related substances

2. (1)根据欧盟 RoHS 指令 2011/65/EU 及其修订指令(EU) 2015/863 及客户要求, 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)进行测试。

According to RoHS Directive 2011/65/EU with amendment (EU) 2015/863 and 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) in the submitted sample(s).

(2)根据客户要求, 对所提交样品中的多环芳烃(PAHs), 铍(Be), 锑(Sb), 卤素, 全氟辛酸(PFOA), 全氟辛烷磺酸(PFOS), 红磷进行测试。

As specified by client, to test Polycyclic Aromatic Hydrocarbons (PAHs), Beryllium(Be), Antimony(Sb), Halogen(s), Perfluorooctanoic Acid(PFOA), Perfluorooctane Sulfonates(PFOS), Red phosphorus in the submitted sample(s).

测试结果

CONCLUSION

见结果页

See test result(s)

符合

PASS

见结果页

See test result(s)

*****详细结果, 请见下页*****

***** For further details, please refer to the following page(s) *****

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1.1 客户要求 Client's requirement

▼ 全氟己基磺酸(PFHxS)及其盐和相关物质 Perfluorohexane-1-sulphonic acid (PFHxS) and its salts & related substances

测试方法: 参考 EN 17681-1:2025*¹; 测试仪器: LC-MS-MS&GC-MS-MS
Test Method: Refer to EN 17681-1:2025*¹; Test Equipment: LC-MS-MS&GC-MS-MS

测试项目 Tested Item(s)	CAS No.	结果 Result (mg/kg)	方法检出限 MDL (mg/kg)
		001	
PFHxS 及其盐 PFHxS and its salts*	-	N.D.	0.010
全氟己基磺酸(PFHxS)及其盐 Perfluorohexanesulfonic acid (PFHxS) and its salts	-	N.D.	--
全氟己基磺酰胺 1-Hexane-sulfonamide,1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro- (FHxSA)	41997-13-1	N.D.	0.010
N-甲基全氟己烷磺酰胺 N-methylperfluorohexanesulfonamide (MeFHxSA)	68259-15-4	N.D.	0.200
N-AP-FHxSA 及其盐 N-AP-FHxSA and its salts*	-	N.D.	0.010
丙烯酸(N-甲基全氟己基磺酰胺基)乙酯 (N-Methylperfluorohexanesulfonamido)ethyl acrylate (N-MeFHxSA-EA)	67584-57-0	N.D.	0.200
EtFHxSAA 及其盐 EtFHxSAA and its salts*	-	N.D.	0.010
N-乙基-1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-N-(2-羟乙基)-1-己磺酰胺 N-ethyltridecafluoro-N-(2-hydroxyethyl)hexanesulphonamide (Et-FHxSE)	34455-03-3	N.D.	0.100
2-[甲基[(十三氟己基)磺酰基]氨基]乙基甲基丙烯酸酯 2-(Methyl((tridecafluorohexyl)sulphonyl)amino)ethyl methacrylate (N-MeFHxSA-EE)	67584-61-6	N.D.	0.100
2-[乙基[(十三氟己基)磺酰基]氨基]乙基甲基丙烯酸酯 2-(Ethyl((tridecafluorohexyl)sulphonyl)amino)ethyl methacrylate (N-EtFHxSA-EE)	67906-70-1	N.D.	0.100
十三氟-N-(2-羟基乙基)-N-甲基己烷磺酰胺 Tridecafluoro-N-(2-hydroxyethyl)-N-methyl-1-hexanesulfonamide (MeFHxSE)	68555-75-9	N.D.	0.100
全氟己基磺酸(PFHxS)相关物质 Perfluorohexanesulfonic acid (PFHxS) related substances	-	N.D.	--

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备注 Remark:

- MDL = 方法检出限 Method Detection Limit
- N.D. = 未检出 Not Detected (小于方法检出限 <MDL)
- mg/kg = ppm = 百万分之一 parts per million
- * = PFHxS 及其盐和相关物质清单中列出的物质 The substances listed in the List of PFHxS and its salts & related substances
- 按照目前手段, 样品无法进一步拆分, 样品整体测试, 测试结果不代表整体测试样品中任何一种单一材质的含量。The sample(s) was tested as a whole, because it's impossible to disassemble or separate it by current equipment and technology. The result(s) shown on this report may be different from the content of any homogeneous material.
- 根据客户声明, 本报告中的报告抬头公司名称与报告 A2260156931101001E 中的报告抬头公司名称为客户和供应商的关系, 本报告的测试结果引用自报告 A2260156931101001E。

According to the client's statement, the Company Name shown on Report in this report and the Company Name shown on Report in the report A2260156931101001E are the buyer-supplier relations, the test result(s) of this report is/are presented in reference to the result(s) that reported in A2260156931101001E.

PFHxS 及其盐和相关物质清单 List of PFHxS and its salts & related substances

序号 No.	组名 Group Name	物质名称 Substance Name(s)	CAS No.
全氟己基磺酸(PFHxS)及其盐 Perfluorohexanesulfonic acid (PFHxS) and its salts			
1	PFHxS 及其盐 PFHxS and its salts	全氟己基磺酸 Perfluorohexanesulfonic acid (PFHxS)	355-46-4
2		全氟己基磺酸钠 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6- tridecafluoro-, sodium salt (PFHxS-Na)	82382-12-5
3		全氟己基磺酸钾 Potassium perfluorohexane-1-sulphonate (PFHxS-K)	3871-99-6
4		全氟己基磺酸锂 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, lithium salt (1:1) (PFHxS-Li)	55120-77-9
5		全氟己基磺酸锌 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, zinc salt (PFHxS-Zn)	70136-72-0
6		全氟己基磺酸镓盐(9CI) 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, gallium salt (9CI) (PFHxS-Ga)	341035-71-0
7		全氟己基磺酸钪盐(3:1) 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, scandium(3+) salt (3:1) (PFHxS-Sc)	350836-93-0
8		全氟己基磺酸钕盐(3:1) 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, neodymium(3+) salt (3:1) (PFHxS-Nd)	41184-65-0
9		全氟己基磺酸钇盐(3:1) 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, yttrium(3+) salt (3:1) (PFHxS-Y)	41242-12-0
10		全氟己基磺酸铯 Cesium Perfluorohexanesulfonate (PFHxS-Cs)	92011-17-1
11		全氟己基磺酸铵 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, ammonium salt (1:1) (PFHxS-NH ₄)	68259-08-5
12		全氟己基磺酰氟 1-Hexanesulfonyl fluoride, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro- (PFHxSF)	423-50-7

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13	全氟己基磺酰氯 1,1,2,2,3,3,4,4,5,5,6,6,6-Tridecafluorohexane-1-sulphonyl chloride (PFHxS-Cl)	55591-23-6
14	全氟己烷磺酸盐 Perfluorohexylsulfonate (PFHxS (anion))	108427-53-8
15	(二-4,1-苯撑硫)双二苯基硫与 1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸(1:2) 的盐 Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:2) (PFHxS-S ₃ (C ₆ H ₅) ₄ (C ₆ H ₄) ₂)	421555-73-9
16	二[4-(1,1-二甲基丙基)苯基]碘与 1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸的盐 Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic (PFHxS-I(C ₆ H ₄) ₂ (C ₅ H ₁₁) ₂)	421555-74-0
17	三[4-(1,1-二甲基乙基)苯基]硫-1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸酯 Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-S(C ₆ H ₄) ₃ (C ₄ H ₉) ₃)	425670-70-8
18	1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸锌与 N,N-二乙基乙胺(1:1) 1-Hexanesulfonic acid,1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, compd. with N,N-diethylethanamine (1:1) (PFHxS-N(C ₂ H ₅) ₃)	72033-41-1
19	二[(1,1-二甲基乙基)苯基]碘与 1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸的盐(1:1) (9CI) Iodonium, bis[(1,1-dimethylethyl)phenyl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1) (9CI) (PFHxS-I(C ₆ H ₄) ₂ (C ₄ H ₉) ₂)	866621-50-3
20	(4-甲基苯基)二苯基硫-1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸酯(1:1) Sulfonium, (4-methylphenyl)diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-S(C ₆ H ₅) ₂ C ₇ H ₇)	910606-39-2
21	[4-[(2-甲基-1-氧代-2-丙烯-1-基)氧基]苯基]二苯基硫-1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸酯(1:1) Sulfonium, [4-[(2-methyl-1-oxo-2-propen-1-yl)oxy]phenyl]diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-S(C ₆ H ₅) ₂ C ₁₀ H ₉ O ₂)	911027-68-4
22	[4-[(2-甲基-1-氧代-2-丙烯基)氧基]苯基]二苯基硫与 1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸的盐与 2-乙基三环[3.3.1.1 ^{3,7}]癸-2-甲基-2-丙烯酸酯、3-羟基三环[3.3.1.1 ^{3,7}]癸-2-甲基-2-丙烯酸酯和四氢呋喃-2-甲基-2-丙烯酸酯的聚合物 Sulfonium, [4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]diphenyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1), polymer with 2-ethyltricyclo[3.3.1.1 ^{3,7}]dec-2-yl 2-methyl-2-propenoate,3-hydroxytricyclo[3.3.1.1 ^{3,7}]dec-1-yl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate	911027-69-5
23	二苯并[k,n][1,4,7,10,13]四氧硫酰氯代十六烷基铵,19-[4-(1,1-二甲基乙基)苯基]-6,7,9,10,12,13-六氢-1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸酯(1:1) Dibenzo[k,n][1,4,7,10,13]tetraoxathiacyclopentadecinium, 19-[4-(1,1-dimethylethyl)phenyl]-6,7,9,10,12,13-hexahydro-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-SC ₂₈ H ₃₁ O ₄)	928049-42-7
24	三苯基(苯甲基)膦-1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸酯(1:1) Phosphonium, triphenyl(phenylmethyl)-,1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-P(C ₆ H ₅) ₃ C ₇ H ₇)	1000597-52-3
25	N,N,N-三丁基-1-丁胺与 1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸的盐 1-Butanaminium, N,N,N-tributyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (PFHxS-N(C ₄ H ₉) ₄)	108427-54-9
26	N,N,N-三乙基乙胺与 1,1,2,2,3,3,4,4,5,5,6,6,6-十三氟-1-己基磺酸(1:1)的盐 Ethanaminium,N,N,N-triethyl-,salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1) (PFHxS-N(C ₂ H ₅) ₄)	108427-55-0

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27	吡咯烷与 1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸(1:1)的盐 1-Hexanesulfonic acid,1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-, compd. with pyrrolidine (1:1) (PFHxS-NC ₄ H ₉)	1187817-57-7
28	三苯基硫-1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸酯(1:1) Sulfonium, triphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-S(C ₆ H ₅) ₃)	144116-10-9
29	1-(羧甲基)-4-[2-[4-[4-(2,2-二苯基乙烯基)苯基]-1,2,3,3a,4,8b-六氢旋流器戊烷 [b]吡啶-7-基]乙炔基]喹啉-十三氟-1-己基磺酸酯(1:1) Quinolinium,1-(carboxymethyl)-4-[2-[4-[4-(2,2-diphenylethenyl)phenyl]-1,2,3, 3a,4,8b-hexahydrocyclopent[b]indol-7-yl]ethenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6- tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-C ₄₄ H ₃₇ N ₂ O ₂)	1462414-59-0
30	二苯基碘-1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸酯(1:1) Iodonium, diphenyl-,1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-I(C ₆ H ₅) ₂)	153443-35-7
31	N,N,N-三甲基甲胺与 1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸(1:1)的盐 Methanaminium,N,N,N-trimethyl-,salt with 1,1,2,2,3,3,4,4,5,5,6,6- tridecafluoro-1-hexanesulfonic acid (1:1) (PFHxS-N(CH ₃) ₄)	189274-31-5
32	2-甲基-2-丙胺与 1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸(1:1)的盐 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-, compd. with 2-methyl-2-propanamine (1:1) (PFHxS-NH ₂ (CH ₃) ₃)	202189-84-2
33	二[4-(1,1-二甲基乙基)苯基]碘-1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸酯 (1:1) Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6- tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-I(C ₆ H ₄) ₂ (C ₄ H ₉) ₂)	213740-81-9
34	二(4-甲基苯基)苯基硫-1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸酯(1:1) Sulfonium, bis(4-methylphenyl)phenyl-,1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-1- hexanesulfonate (1:1) (PFHxS-S(C ₇ H ₇) ₂ C ₆ H ₅)	341548-85-4
35	N-[4-[4-(二乙氨基)苯基][4-(乙氨基)-1-萘基]亚甲基]-2,5-环己二烯-1-亚 基]-N-乙基乙胺-1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸酯(1:1) Ethanaminium, N-[4-[4-(diethylamino)phenyl][4-(ethylamino)-1- naphthalenyl]methylene]-2,5-cyclohexadien-1-ylidene]-N-ethyl-, 1,1,2,2,3,3, 4,4,5,5,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-(NC ₁₀ H ₁₄) ₃ C ₅ H ₄)	1310480-24-0
36	N-[4-[4-(二甲氨基)苯基][4-(乙氨基)-1-萘基]亚甲基]-2,5-环己二烯-1-亚 基]-N-甲基甲胺-1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸酯(1:1) Methanaminium, N-[4-[4-(dimethylamino)phenyl][4-(ethylamino)-1- naphthalenyl]methylene]-2,5-cyclohexadien-1-ylidene]-N-methyl-,1,1,2,2,3,3, 4,4,5,5,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-(NC ₈ H ₁₀) ₂ C ₁₃ H ₁₂)	1310480-27-3
37	N-[4-[4-(二甲氨基)苯基][4-(苯氨基)-1-萘基]亚甲基]-2,5-环己二烯-1-亚 基]-N-甲基甲胺-1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸酯(1:1) Methanaminium, N-[4-[4-(dimethylamino)phenyl][4-(phenylamino)-1- naphthalenyl]methylene]-2,5-cyclohexadien-1-ylidene]-N-methyl-,1,1,2,2,3,3,4, 4,5,5,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-(NC ₈ H ₁₀) ₂ C ₁₇ H ₁₂)	1310480-28-4
38	β-环糊精与 1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸根(1-)(1:1)形成的化合 物 Beta-Cyclodextrin, compd. with 1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-1- hexanesulfonic acid ion(1-)(1:1) (PFHxS-C ₄₂ H ₇₀ O ₃₅)	1329995-45-0
39	γ-环糊精与 1,1,2,2,3,3,4,4,5,5,6,6-十三氟-1-己基磺酸根(1-)(1:1)形成的化合 物 Gamma-Cyclodextrin, compd. with 1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-1- hexanesulfonic acid ion(1-)(1:1) (PFHxS-C ₄₈ H ₈₀ O ₄₀)	1329995-69-8

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40		2,2'-亚氨基二乙醇与 1,1,2,2,3,3,4,4,5,5,6,6,6-三氟-1-己基磺酸(1:1)形成的化合物 Tridecafluorohexanesulphonic acid, compound with 2,2'-iminodiethanol (1:1) (PFHxS-NH(C ₂ H ₅ O) ₂)	70225-16-0
41		全氟己基磺酸四丁基磷 Tetrabutylphosphonium perfluorohexane sulfonate (PFHxS-P(C ₄ H ₉) ₄)	2310194-12-6
全氟己基磺酸(PFHxS)相关物质 Perfluorohexanesulfonic acid (PFHxS) related substances			
42	--	全氟己基磺酰胺 1-Hexane-sulfonamide,1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro- (FHxSA)	41997-13-1
43	--	N-甲基全氟己烷磺酰胺 N-methylperfluorohexanesulfonamide (MeFHxSA)	68259-15-4
44		N-[3-(二甲基氨基)丙基]十三氟己磺酰胺 N-(3-(Dimethylamino)propyl) perfluorohexane sulfonamide (N-AP-FHxSA)	50598-28-2
45	N-AP-FHxSA 及其盐 N-AP-FHxSA and its salts	N-[3-(二甲基氨基)丙基]十三氟己磺酰胺盐酸盐 N-(3-(Dimethylamino)propyl)perfluorohexanesulfonamide hydrochloride (N-AP-FHxSA-HCl)	68957-61-9
46		N-[4-(二甲基氨基)丙基]十三氟己磺酰胺醋酸盐 N-[3-(Dimethylamino)propyl]-perfluoro-1-hexanesulfonamide acetate (N-AP-FHxSA-Ace)	73772-33-5
47	--	丙烯酸(N-甲基全氟己基磺酰胺基)乙酯 (N-Methylperfluorohexanesulfonamido)ethyl acrylate (N-MeFHxSA-EA)	67584-57-0
48	EtFHxSAA 及其盐 EtFHxSAA and its salts	N-乙基-N-[(十三氟己基)磺酰基]甘氨酸 N-Ethyl-N-((tridecafluorohexyl)sulfonyl)glycine (EtFHxSAA)	68957-32-4
49		N-乙基-N-[(十三氟己基)磺酰基]甘氨酸钾盐 Potassium N-ethyl-N-(perfluorohexylsulphonyl)glycinate (EtFHxSAA-K)	67584-53-6
50		N-乙基-N-[(十三氟己基)磺酰基]甘氨酸钠盐 Sodium N-ethyl-N-((tridecafluorohexyl)sulphonyl)glycinate (EtFHxSAA-Na)	68555-70-4
51	--	N-乙基-1,1,2,2,3,3,4,4,5,5,6,6,6-三氟-N-(2-羟乙基)-1-己磺酰胺 N-ethyltridecafluoro-N-(2-hydroxyethyl)hexanesulphonamide (Et-FHxSE)	34455-03-3
52	--	2-[甲基[(十三氟己基)磺酰基]氨基]乙基甲基丙烯酸酯 2-(Methyl((tridecafluorohexyl)sulphonyl)amino)ethyl methacrylate (N-MeFHxSA-EE)	67584-61-6
53	--	2-[乙基[(十三氟己基)磺酰基]氨基]乙基甲基丙烯酸酯 2-(Ethyl((tridecafluorohexyl)sulphonyl)amino)ethyl methacrylate (N-EtFHxSA-EE)	67906-70-1
54	--	十三氟-N-(2-羟基乙基)-N-甲基己烷磺酰胺 Tridecafluoro-N-(2-hydroxyethyl)-N-methyl-1-hexanesulfonamide (MeFHxSE)	68555-75-9

样品/部位描述 Sample/Part Description

序号	CTI 样品 ID	描述
No.	CTI Sample ID	Description
1	001	芯片（整体测试） Chip(Tested as a whole)

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2.1 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 62321-12:2023	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-12:2023	GC-MS
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-12:2023	GC-MS
多环芳烃 Polycyclic Aromatic Hydrocarbons (PAHs)	AfPS GS 2019:01 PAK	GC-MS
铍 Beryllium(Be)	参考 US EPA 3052:1996 & US EPA 6010D:2018* ¹ Refer to US EPA 3052:1996 & US EPA 6010D:2018* ¹	ICP-OES
锑 Antimony(Sb)	参考 US EPA 3052:1996 & US EPA 6010D:2018* ¹ Refer to US EPA 3052:1996 & US EPA 6010D:2018* ¹	ICP-OES
卤素 Halogen(s)	EN 14582:2016	IC
全氟辛酸 Perfluorooctanoic Acid(PFOA)	CEN/TS 15968:2010* ¹	LC-MS-MS
全氟辛烷磺酸 Perfluorooctane Sulfonates(PFOS)	CEN/TS 15968:2010* ¹	LC-MS-MS
红磷 Red phosphorus* ¹	GB/T 6040-2019, GB/T 9722-2023, GB/T 17359-2023, EPA 6010D:2018	ICP-OES, PY-GC-MS, FTIR, EM

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2.2 检测结果 Test Result(s)

Table with 4 columns: Tested Item(s), Result, MDL, Limit. Rows include Lead (Pb), Cadmium (Cd), Mercury (Hg), and Hexavalent Chromium (Cr(VI)).

Table with 4 columns: Tested Item(s), Result, MDL, Limit. Section: 多溴联苯 Polybrominated Biphenyls (PBBs). Rows include Monobromobiphenyl through Decabromobiphenyl.

Table with 4 columns: Tested Item(s), Result, MDL, Limit. Section: 多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs). Rows include Monobromodiphenyl ether through Decabromodiphenyl ether.

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
	001		
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
	001	
多环芳烃 Polycyclic Aromatic Hydrocarbons (PAHs)		
萘 Naphthalene	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
蒎 Chrysene	N.D.	0.2 mg/kg
苯并(a)蒽 Benzo(a)anthracene	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(j)荧蒽 Benzo(j)fluoranthene	N.D.	0.2 mg/kg
苯并(a)芘 Benzo(a)pyrene	N.D.	0.2 mg/kg
苯并(e)芘 Benzo(e)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
茚并(1,2,3-cd)芘 Indeno(1,2,3-cd)pyrene	N.D.	0.2 mg/kg
菲,蒽,荧蒽,芘总量 Sum (Phenanthrene, Anthracene, Fluoranthene, Pyrene)	N.D.	/
15 PAHs 总量 Sum 15 PAHs	N.D.	/

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

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	001	
锑 Antimony (Sb)	N.D.	5 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	001	
卤素 Halogen(s)		
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

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	001	
全氟辛酸 Perfluorooctanoic Acid (PFOA)	N.D.	0.01 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	001	
全氟辛烷磺酸 Perfluorooctane Sulfonates (PFOS)	N.D.	0.01 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	001	
红磷 Red phosphorus* ¹	N.D.	500 mg/kg

样品/部位描述 Sample/Part Description

序号	CTI 样品 ID	描述
No.	CTI Sample ID	Description
1	001	芯片（整体测试） Chip(Tested as a whole)

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备注: 对于检测铅, 镉, 汞, 铍, 锑之样品已消解完全。
按照目前手段, 样品无法进一步拆分, 样品整体测试, 测试结果不代表整体测试样品中任何一种单一材质的含量。
-N.D. = 未检出 (小于方法检出限)
-mg/kg = ppm = 百万分之一
-1000 mg/kg = 0.1%
-*=根据客户声明, 样品涉及欧盟RoHS指令2011/65/EU豁免项第7(c)-V条:
在玻璃或玻璃基质化合物中含有铅的电气和电子元件, 具有以下任何一功能:
1) 用于高压二极管玻璃珠和晶片玻璃层的保护和电绝缘
2) 用于陶瓷、金属和/或玻璃部件之间的密封
3) 用于在 $< 500^{\circ}\text{C}$ 的工艺参数窗口和 1013.3 dPas 的粘度 (“玻璃转化温度”) 下进行粘接
4) 用作墨水等电阻材料, 电阻率范围为 1 欧姆/平方到 100 兆欧/平方, 不包括微调电位器
5) 用于微通道板 (MCP)、通道电子倍增器 (CEM) 和电阻玻璃产品 (RGP) 的化学改性玻璃表面
-根据客户声明, 本报告中的报告抬头公司名称与报告 A2260156931101001E 中的报告抬头公司名称为客户和供应商的关系, 本报告的测试结果引用自报告 A2260156931101001E。

Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury, Beryllium, Antimony.**
The sample(s) was tested as a whole, because it's impossible to disassemble or separate it by current equipment and technology. The result(s) shown on this report may be different from the content of any homogeneous material.
-MDL = Method Detection Limit
-N.D. = Not Detected ($< \text{MDL}$)
-mg/kg = ppm = parts per million
-1000 mg/kg = 0.1%
-*=According to the client's statement, the material of the sample(s) fall into exemption items 7(c)-V according to EU Directive 2011/65/EU:
Electrical and electronic components containing lead in a glass or glass matrix compound that fulfils any of the following functions:
1) for protection and electrical insulation in glass beads of high-voltage diodes and glass layers for wafers;
2) for hermetic sealing between ceramic, metal and/or glass parts;
3) for bonding purposes in a process parameter window for $< 500^{\circ}\text{C}$ combined with a viscosity of 1013.3 dPas ('glass-transition temperature');
4) for use as a resistive material such as ink, with a resistivity range from 1 ohm/square to 100 megohm/square, excluding trimmer potentiometers;
5) for use in chemically modified glass surfaces for microchannel plates (MCPs), channel electron multipliers (CEMs) and resistive glass products (RGPs).
-According to the client's statement, the Company Name shown on Report in this report and the Company Name shown on Report in the report A2260156931101001E are the buyer-supplier relations, the test result(s) of this report is/are presented in reference to the result(s) that reported in A2260156931101001E.

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。
“*1”表示该项目/方法不在 CNAS 认可范围内。

Note: **The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.**
“*1” indicates the item(s)/method(s) is (are) not in CNAS accreditation scope.

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可接触的表面材料中 PAHs 含量限值(mg/kg)(按风险评估的结果分类)

Maximum PAHs limits (mg/kg) for the materials with relevant contact/grip and operating surfaces that are to be categorised based on the results of the risk assessment

参数 Parameters	一类 Category 1	二类 Category 2		三类 Category 3	
	可放入口中的材料，或预期和皮肤接触时间超过 30 秒（长时间接触）2009/48/EC 定义的玩具材料或供 3 岁以下儿童使用的产品 Materials intended to be placed in the mouth, or materials in toys according to Directive 2009/48/EC or materials for the use by children up to 3 years of age coming into long-term contact with skin (more than 30s) during the intended use	未包含在第一类材料中，预期和皮肤接触时间超过 30 秒（长时接触），或者和皮肤短时间频繁接触**的材料 Materials not covered by category 1, coming into long-term contact (more than 30s) or short-term repetitive contact** with skin during the intended or foreseeable use		未包含在第一类和第二类材料中，预期和皮肤接触时间不超过 30 秒（短时接触）的材料 Materials not covered by category 1 nor by category 2, coming into short-term contact (up to 30s) with skin during the intended or foreseeable use	
		供儿童（< 14 岁）使用的产品（包括主动和被动直接接触） Use by children (< 14 years) (include both active and passive direct contact)	其他类产品 Other consumer products	供儿童（< 14 岁）使用的产品（包括主动和被动直接接触） Use by children (< 14 years) (include both active and passive direct contact)	其他类产品 Other consumer products
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
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)苉 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

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菲, 蒽, 荧蒽, 芘 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 < 50 Sum
萘 Naphthalene	< 1	< 2		< 10	
15 PAHs 总量 Sum 15 PAHs	< 1	< 5	< 10	< 20	< 50

** “短时间频繁接触” 来自REACH法规附录XVII第50项的修订案(法规 (EU) No. 1272/2013)
Definition “short-term repetitive contact” taken from REACH Annex XVII entry 50 amendment
(REGULATION (EU) No.1272/2013)

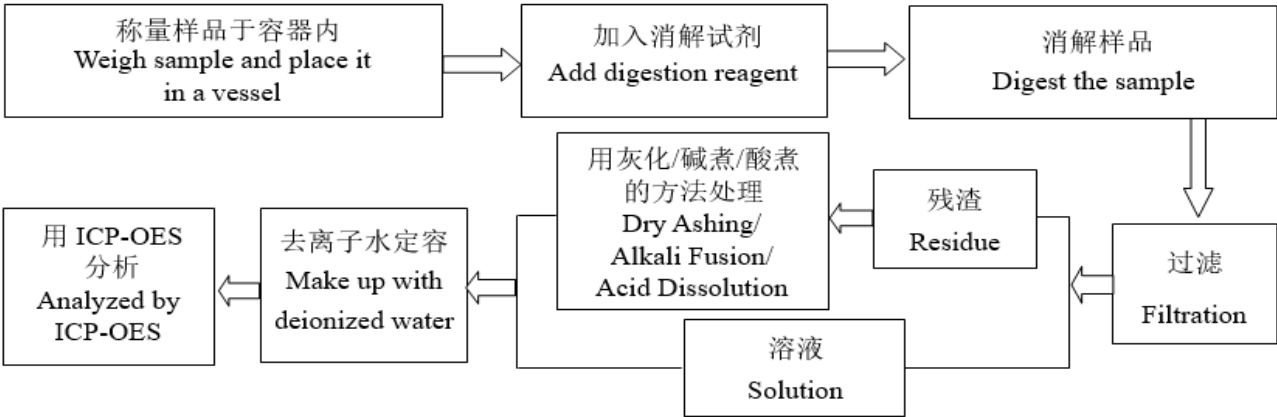
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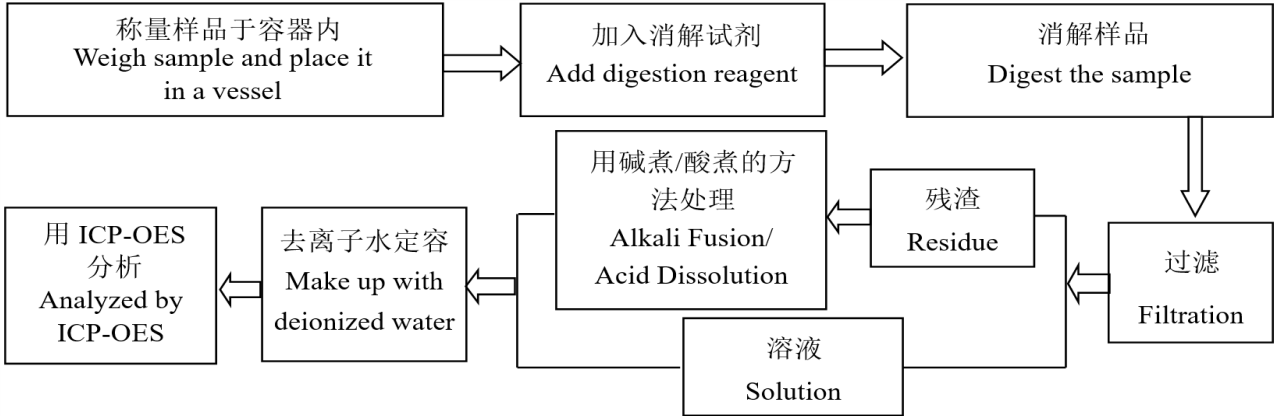
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2.3 检测流程 Test Process

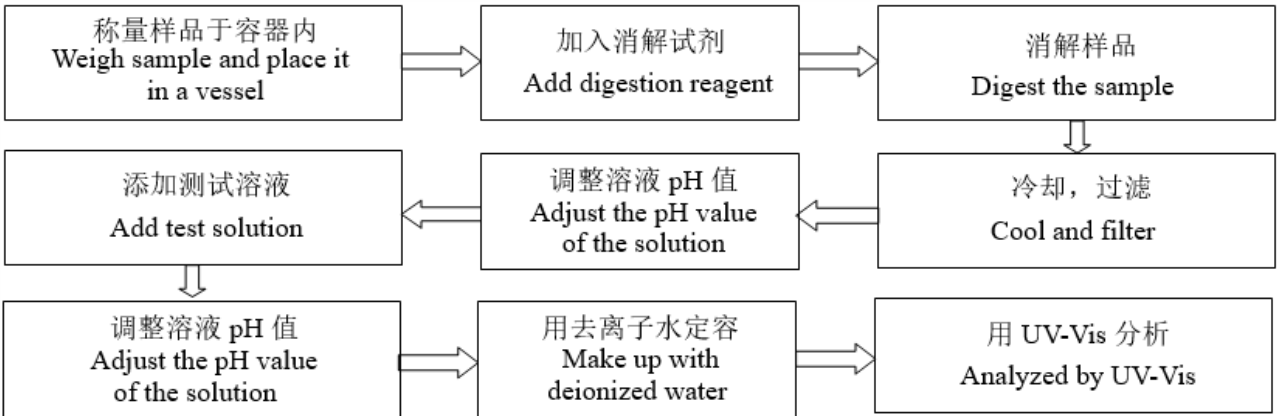
2.3.1. 铅 Lead (Pb), 镉 Cadmium (Cd), 铬 Chromium(Cr)



2.3.2. 汞 Mercury (Hg)



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



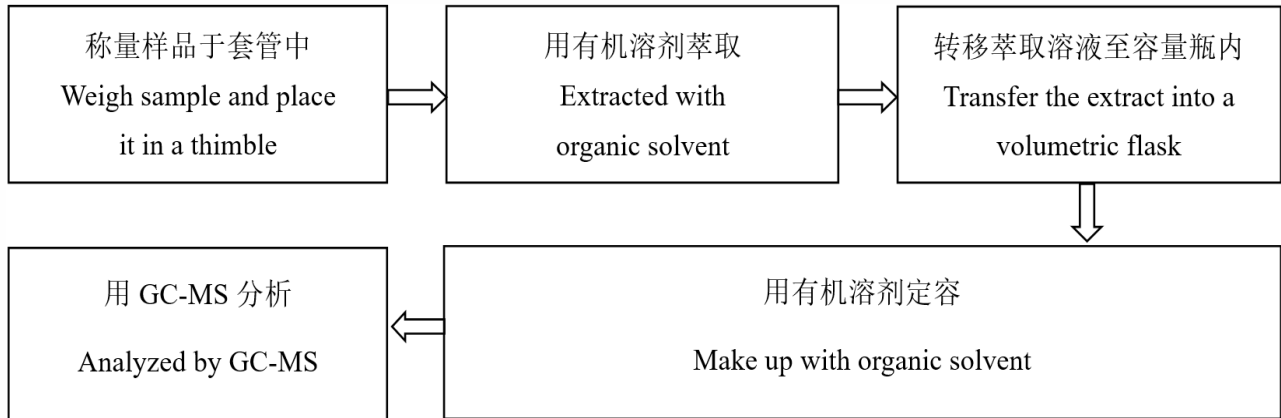
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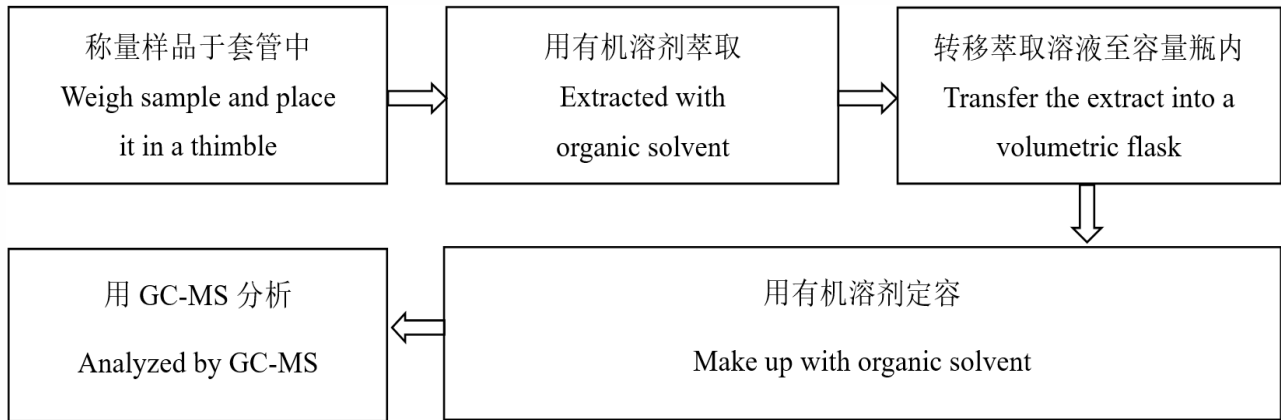
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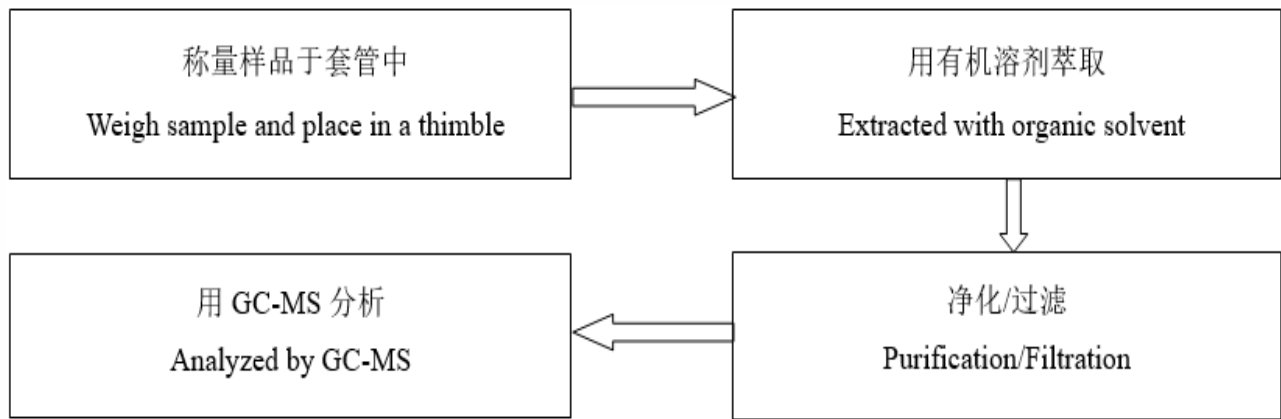
2.3.4. 多溴联苯 Polybrominated Biphenyls (PBBs), 多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)



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



2.3.6. 多环芳烃 Polycyclic Aromatic Hydrocarbons (PAHs)



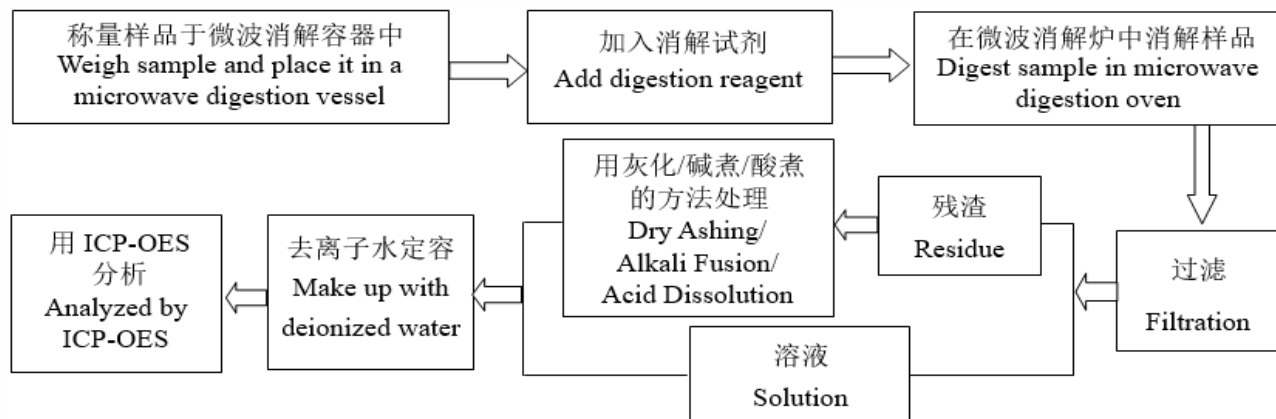
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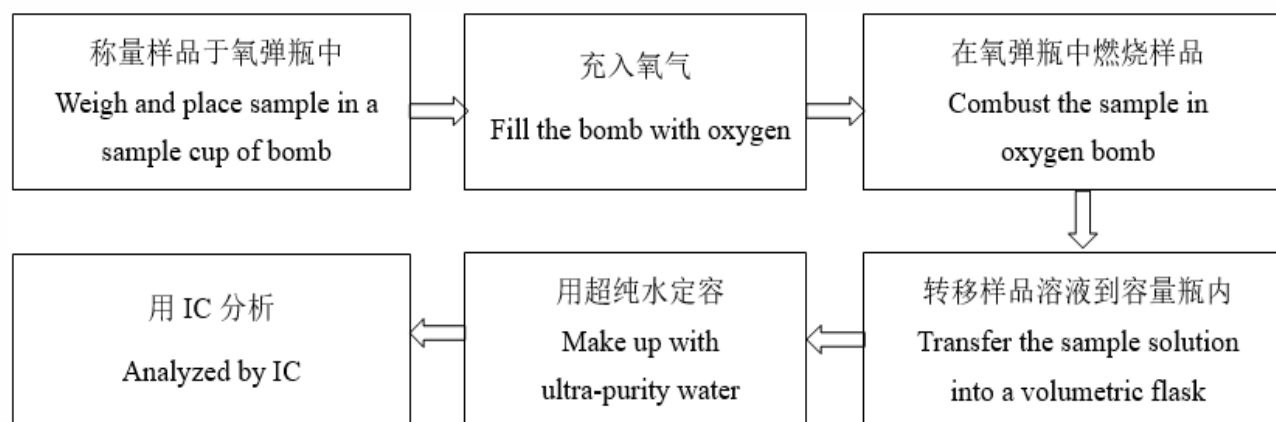
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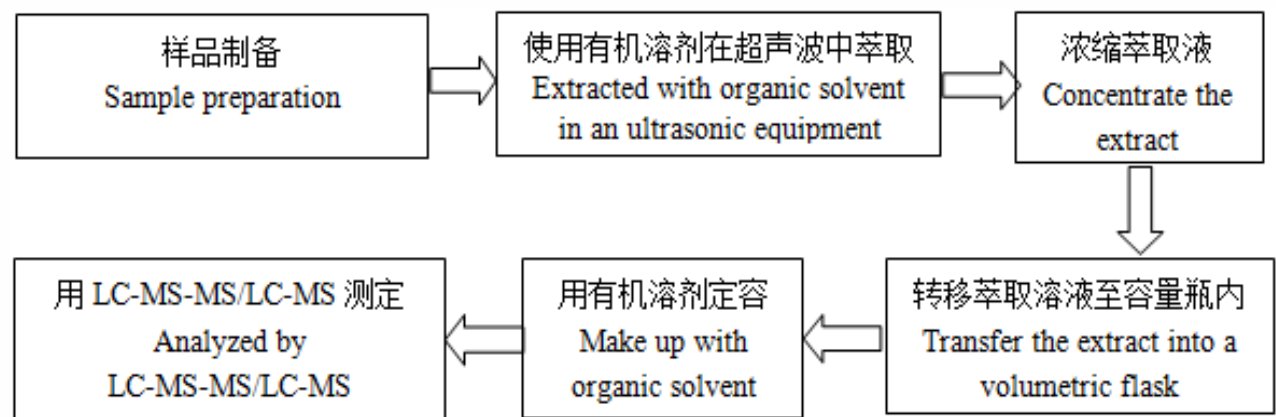
2.3.7. 铍 Beryllium(Be), 锑 Antimony(Sb)



2.3.8. 卤素 Halogen(s)



2.3.9. 全氟辛酸(PFOA)Perfluorooctanoic Acid(PFOA), 全氟辛烷磺酸(PFOS)Perfluorooctane Sulfonates(PFOS)



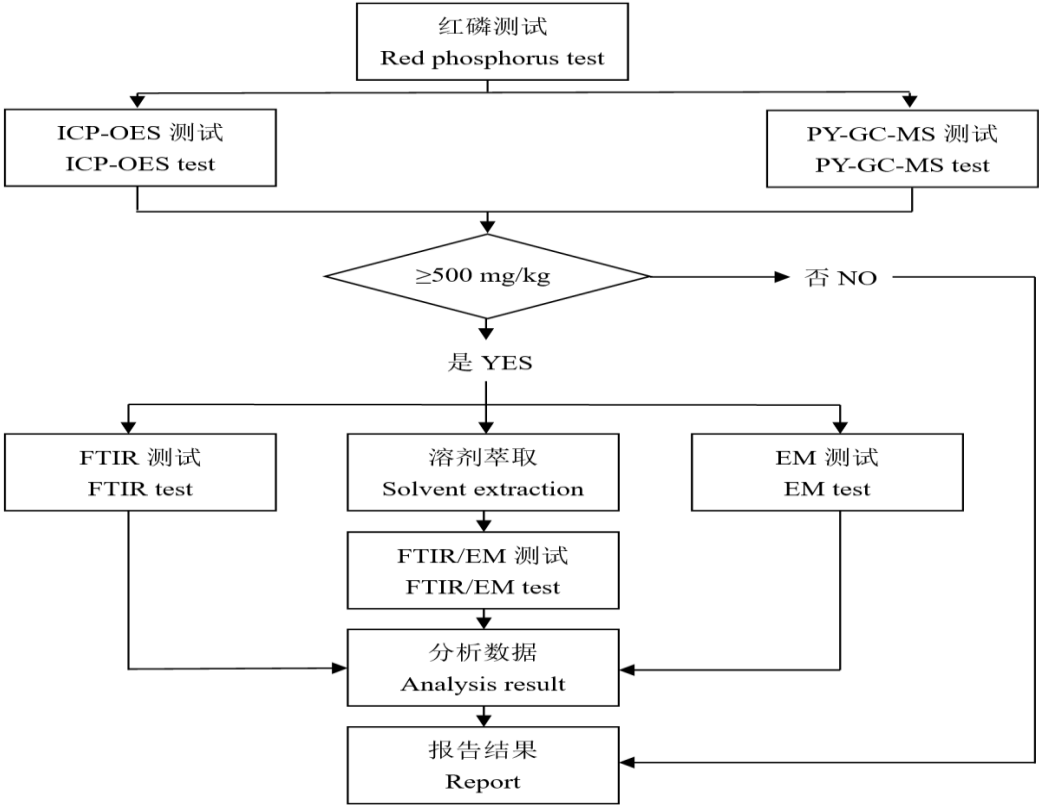
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2.3.10. 红磷 Red phosphorus



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样品图片

Photo(s) of the sample(s)



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*** 报告结束 ***
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