CTI 華測檢測

檢測報告
Test Report

報告編號 A2240127985101001E　　第 1 頁 共 15 頁
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報告抬頭公司名稱 Company Name shown on Report 鴻星科技(集團)股份有限公司 HOSONIC TECHNOLOGY (GROUP) CO., LTD.

地 址 Address 浙江省杭州市余杭区良渚街道莫干山路 2880 号 NO.2880 MOGANSHAN ROAD LIANGZHU STREET, YUHUANG DIST, HANGZHOU ZHEJIANG

以下測試之樣品及樣品信息由申請者提供並確認
The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

樣品名稱 Sample Name	SMD Crystal Series, Thermistor Crystal Series and SMD Crystal Oscillator Series
樣品型號 Model No.	Seam Sealing Crystal, Thermistor Crystal and SMD OSC/VCXO/PECL/LVDS
供應商 Supplier	鴻星科技(集團)股份有限公司 HOSONIC TECHNOLOGY (GROUP) CO., LTD.
樣品接收日期 Sample Received Date	2024.03.13 Mar. 13, 2024
樣品檢測日期 Testing Period	2024.03.13-2024.03.22 Mar. 13, 2024 to Mar. 22, 2024

檢測要求 Test Requested

根據客戶要求，對所提交樣品中的鉛(Pb)，鎘(Cd)，汞(Hg)，六價鉻(Cr(VI))，多溴聯苯(PBBs)，多溴二苯醚(PBDEs)，鄰苯二甲酸酯(DBP, BBP, DEHP, DIBP)，氟(F)，氯(Cl)，溴(Br)，碘(I)，鄰苯二甲酸酯, TSCA PBT，六溴環十二烷(HBCDD)，銻(Sb)，砷(As)，鈹(Be)，全氟辛烷磺酸鹽(PFOS)及其相關物質，全氟辛酸類(PFOA)相關物質及其鹽物質進行測試。

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), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Phthalates, TSCA PBT, Hexabromocyclododecane (HBCDD), Antimony(Sb), Arsenic(As), Beryllium(Be), PFOS and Related Substances, Perfluorooctanoic acid related substances and Its Salts in the submitted sample(s).

檢測依據/檢測結果 Test Method/Test Result(s) 請參見下頁。 Please refer to the following page(s).

批准 Approved by 徐啓瑞　日期 Date 2024.03.22

徐啓瑞
實驗室經理 Laboratory Manager

No. R556661776

台灣華測檢測技術有限公司檢測中心
Testing Center, Centre Testing International (Taiwan) Co., Ltd.

桃園市蘆竹區南崁路二段 9 號 5 樓之 6
5F-6, No.9, Sec.2, Nankan Rd, Luzhu Dist., Taoyuan, Taiwan

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檢測依據 Test Method

測試項目 Tested Item(s)	測試方法 Test Method	測試儀器 Measured Equipment(s)
鉛 Lead(Pb)	IEC 62321-5:2013	ICP-OES
鎘 Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
汞 Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六價鉻 Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017	UV-Vis
多溴聯苯 Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
鄰苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
氟 Fluorine (F)	參考EN 14582:2016 Refer to EN 14582:2016	IC
氯 Chlorine (Cl)	參考EN 14582:2016 Refer to EN 14582:2016	IC
溴 Bromine (Br)	參考EN 14582:2016 Refer to EN 14582:2016	IC
碘 Iodine (I)	參考EN 14582:2016 Refer to EN 14582:2016	IC
鄰苯二甲酸酯 Phthalates	IEC 62321-8:2017	GC-MS
六溴環十二烷 Hexabromocyclododecane (HBCDD)	IEC 62321-9:2021	GC-MS
全氟辛烷磺酸及全氟辛酸物質 Perfluorooctane sulfonates and Perfluorooctanoic acid substances (PFOS & PFOA)	參考CEN/TS 15968:2010 Refer to CEN/TS 15968:2010	LC-MS-MS
鈹 Beryllium(Be)	參考US EPA 3052:1996 & US EPA 6010D:2018 Refer to US EPA 3052:1996 & US EPA 6010D:2018	ICP-OES
砷 Arsenic(As)	參考US EPA 3052:1996 & US EPA 6010D:2018 Refer to US EPA 3052:1996 & US EPA 6010D:2018	ICP-OES
銻 Antimony(Sb)	參考US EPA 3052:1996 & US EPA 6010D:2018 Refer to US EPA 3052:1996 & US EPA 6010D:2018	ICP-OES
阻燃劑-TSCA	參考US EPA 3550C:2007 & US EPA 8270E:2018 Refer to US EPA 3550C:2007 & US EPA 8270E:2018	GC-MS

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檢測結果 Test Result(s)

測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL
	001	
鉛 Lead (Pb)	N.D.	2 mg/kg
鎘 Cadmium (Cd)	N.D.	2 mg/kg
汞 Mercury (Hg)	N.D.	2 mg/kg
六價鉻 Hexavalent Chromium (Cr(VI))	N.D.	8 mg/kg
測試項目 Tested Item(s)	**結果 Result**	**方法檢出限 MDL**
	001	
多溴聯苯 Polybrominated Biphenyls(PBBs)		
一溴聯苯 Monobromobiphenyl	N.D.	5 mg/kg
二溴聯苯 Dibromobiphenyl	N.D.	5 mg/kg
三溴聯苯 Tribromobiphenyl	N.D.	5 mg/kg
四溴聯苯 Tetrabromobiphenyl	N.D.	5 mg/kg
五溴聯苯 Pentabromobiphenyl	N.D.	5 mg/kg
六溴聯苯 Hexabromobiphenyl	N.D.	5 mg/kg
七溴聯苯 Heptabromobiphenyl	N.D.	5 mg/kg
八溴聯苯 Octabromobiphenyl	N.D.	5 mg/kg
九溴聯苯 Nonabromobiphenyl	N.D.	5 mg/kg
十溴聯苯 Decabromobiphenyl	N.D.	5 mg/kg
測試項目 Tested Item(s)	**結果 Result**	**方法檢出限 MDL**
	001	
多溴二苯醚 Polybrominated Diphenyl Ethers(PBDEs)		
一溴二苯醚 Monobromodiphenyl ether	N.D.	5 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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測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL
	001	
鄰苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)		
鄰苯二甲酸二正丁酯(DBP) Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
鄰苯二甲酸丁基苄酯(BBP) Benzylbutyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
鄰苯二甲酸二(2-乙基己基)酯(DEHP) Di-2-ethylhexyl phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
鄰苯二甲酸二異丁酯(DIBP) Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg
測試項目 Tested Item(s)	**結果 Result**	**方法檢出 MDL**
	001	
氟 Fluorine (F)	N.D.	50 mg/kg
氯 Chlorine (Cl)	N.D.	50 mg/kg
溴 Bromine (Br)	N.D.	50 mg/kg
碘 Iodine (I)	N.D.	50 mg/kg
測試項目 Tested Item(s)	**結果 Result**	**方法檢出限 MDL**
	001	
六溴環十二烷 Hexabromocyclododecane (HBCDD)	N.D.	20 mg/kg
測試項目 Tested Item(s)	**結果 Result**	**方法檢出限 MDL**
	001	
鈹 Beryllium (Be)	N.D.	2 mg/kg
測試項目 Tested Item(s)	**結果 Result**	**方法檢出限 MDL**
	001	
砷 Arsenic (As)	N.D.	2 mg/kg
測試項目 Tested Item(s)	**結果 Result**	**方法檢出限 MDL**
	001	
銻 Antimony (Sb)	N.D.	2 mg/kg

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測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL
	001	
鄰苯二甲酸酯 Phthalates		
鄰苯二甲酸二(2-甲氧基)乙酯 Bis(2-methoxyethyl) phthalate (DMEP) CAS#:117-82-8	N.D.	50 mg/kg
鄰苯二甲酸二環己酯 Dicyclohexyl phthalate (DCHP) CAS#:84-61-7	N.D.	50 mg/kg
鄰苯二甲酸二己酯 Di-n-hexyl phthalate (DNHP/DHEXP) CAS#:84-75-3	N.D.	50 mg/kg
鄰苯二甲酸二甲酯 Dimethyl phthalate (DMP) CAS#:131-11-3	N.D.	50 mg/kg
鄰苯二甲酸二壬酯 Dinonyl phthalate (DNP) CAS#:84-76-4	N.D.	50 mg/kg
鄰苯二甲酸二乙酯 Diethyl phthalate (DEP) CAS#:84-66-2	N.D.	50 mg/kg
鄰苯二甲酸二異癸酯 Di-iso-decyl phthalate (DIDP) CAS#:26761-40-0,68515-49-1	N.D.	50 mg/kg
鄰苯二甲酸二異壬酯 Di-isononyl phthalate (DINP) CAS#:28553-12-0,68515-48-0	N.D.	50 mg/kg
鄰苯二甲酸二正辛酯 Di-n-octyl phthalate (DNOP) CAS#:117-84-0	N.D.	50 mg/kg
鄰苯二甲酸烷基酯(C6-8支型結構,C7富集) 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP) CAS#:71888-89-6	N.D.	50 mg/kg
鄰苯二甲酸烷基酯(C7-11支型和線性結構) 1,2-Benzenedicarboxylic acid, di-(C7-11)-branched and linear alkyl esters (DHNUP) CAS#:68515-42-4	N.D.	50 mg/kg

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測試項目 Tested Item(s)	CAS No.	結果 Result 001	方法檢出限 MDL
全氟辛基磺酸 Perfluorooctanesulfonic acid (PFOS)	1763-23-1	N.D.	0.01 mg/kg
氟蟲胺 N-Ethylperfluoro-1-octanesulfonamide (N-Et-FOSA)	4151-50-2	N.D.	0.05 mg/kg
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-十七氟-N-甲基-辛磺醯胺 N-Methylperfluoro-1-octanesulfonamide (N-Me-FOSA)	31506-32-8	N.D.	0.05 mg/kg
N-乙基全氟辛基磺醯胺乙醇 2-(N-Ethylperfluoro-1-octanesulfonamido)-ethanol (N-Et-FOSE)	1691-99-2	N.D.	0.05 mg/kg
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-十七氟-N-(2-羥乙基)-N-甲基-1-辛基磺醯胺 2-(N-Methylperfluoro-1-octanesulfonamido)-ethanol (N-Me-FOSE)	24448-09-7	N.D.	0.05 mg/kg
全氟辛酸 Perfluorooctanoic Acid (PFOA)	335-67-1	N.D.	0.01 mg/kg
全氟辛烷磺醯胺 Perfluorooctane sulfonamide (PFOSA)	754-91-6	N.D.	0.01 mg/kg

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全氟辛烷磺酸和全氟辛酸清單 List of Perfluorooctanesulfonic acid and Perfluorooctanoic acid

物質名稱 Substance Name(s)	CAS No.
全氟辛烷磺酸 Perfluorooctanesulfonic acid(PFOS)	
全氟辛烷磺酸鉀 Perfluorooctanesulfonic acid, potassium salt	2795-39-3
全氟辛烷磺酸鋰 Perfluorooctanesulfonic acid, lithium salt	29457-72-5
全氟辛烷磺酸銨 Perfluorooctanesulfonic acid, ammonium salt	29081-56-9
全氟辛烷磺酸二乙醇銨 Perfluorooctane sulfonate diethanolamine salt	70225-14-8
全氟辛烷磺酸四乙基胺 Perfluorooctanesulfonic acid, tetraethylammonium salt	56773-42-3
全氟辛烷磺酸二癸二甲基銨 Didecyl dimethyl ammonium perfluorooctane sulfonate	251099-16-8
全氟辛烷磺醯氟 Perfluoro-1-octanesulfonyl fluoride	307-35-7
全氟辛烷磺酸鈉 Sodium perfluorooctane sulfonate	4021-47-0
全氟辛烷磺酸鎂 1-Octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, magnesium salt (2:1)	91036-71-4
全氟辛基磺酸呱啶 Piperidine 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8 heptadecafluorooctanesulfonate	71463-74-6
全氟辛酸 Perfluorooctanoic acid(PFOA)	
全氟辛酸銨 Ammonium pentadecafluorooctanoate	3825-26-1
全氟辛酸鈉 Sodium perfluorooctanoate	335-95-5
全氟辛酸鉀 Potassium perfluorooctanoate	2395-00-8
全氟辛酸銀 Silver perfluorooctanoate	335-93-3
全氟辛氟 Perfluorooctanoyl fluoride	335-66-0

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測試摘要 Executive Summary:

測試要求
TEST REQUEST

美國環保署有毒物質控制法(TSCA)第 6(h)部分關於持久性、生物累積性和毒性(PBT)化學物質的管控
Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under US EPA Toxic Substances Control Act (TSCA) Section 6(h)

- 十溴二苯醚
  Decabromodiphenyl Ether (DecaBDE)
- 異丙基化磷酸三苯酯
  Phenol, Isopropylated Phosphate (PIP (3:1))
- 2,4,6-三叔丁基苯酚
  2,4,6-tris(tert-butyl) phenol (2,4,6-TTBP)
- 六氯丁二烯
  Hexachlorobutadiene (HCBD)
- 五氯苯硫酚
  Pentachlorothiophenol (PCTP)

**********詳細結果，請見下頁**********

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

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美國環保署有毒物質控制法(TSCA)第 6(h)部分關於持久性、生物累積性和毒性(PBT)化學物質的管控
Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under US EPA Toxic Substances Control Act (TSCA) Section 6(h)

參考方法 US EPA 3550C:2007&US EPA 8270E:2018，通過 GC-MS 分析。

Refer to method(s)US EPA 3550C:2007&US EPA 8270E:2018, and the item(s) was/were analyzed by GC-MS.

測試項目 Tested Item(s)	結果 Result (mg/kg)	方法檢出限 Report Limit(mg/kg)
	001	
十溴二苯醚 Decabromodiphenyl Ether (DecaBDE)	N.D.	5
異丙基化磷酸三苯酯 Phenol, Isopropylated Phosphate (PIP (3:1))	N.D.	5
2,4,6-三叔丁基苯酚 2,4,6-tris(tert-butyl) phenol (2,4,6-TTBP)	N.D.	5
六氯丁二烯 Hexachlorobutadiene (HCBD)	N.D.	5
五氯苯硫酚 Pentachlorothiophenol (PCTP)	N.D.	5

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樣品/部位描述 Sample/Part Description

序號	CTI樣品ID	描述
No.	CTI Sample ID	Description
1	001	電子元器件 Electronic components

備註: **對於檢測鉛，鎘，汞，鈹，砷，銻之樣品已消解完全。**

-N.D. = 未檢出 (小於方法檢出限)

-mg/kg = ppm = 百萬分之一

-按照目前手段，樣品無法進一步拆分，樣品整體測試，測試結果不代表整體測試樣品中任何一種單一材質的含量。

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

-MDL = Method Detection Limit

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

-mg/kg = ppm = parts per million

-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.

注釋 **本報告中的資料結果供科研、教學、企業內部品質控制、企業產品研發等目的用。**

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

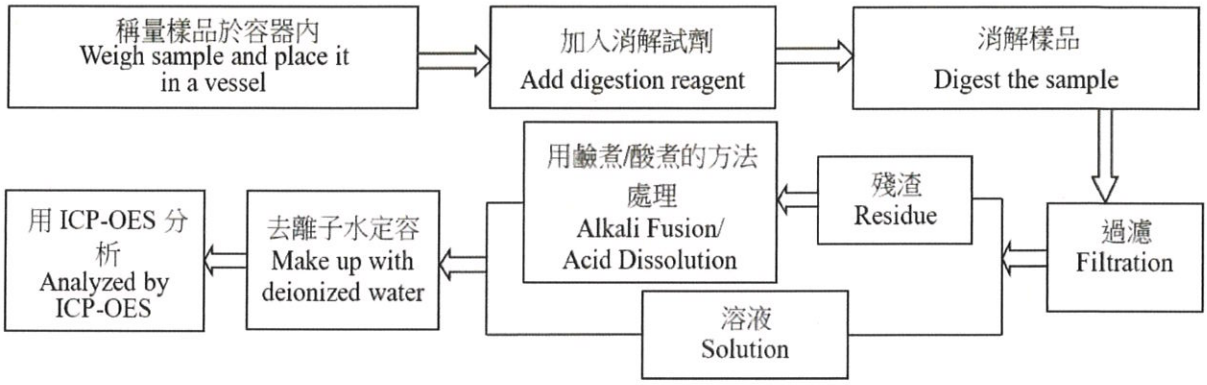
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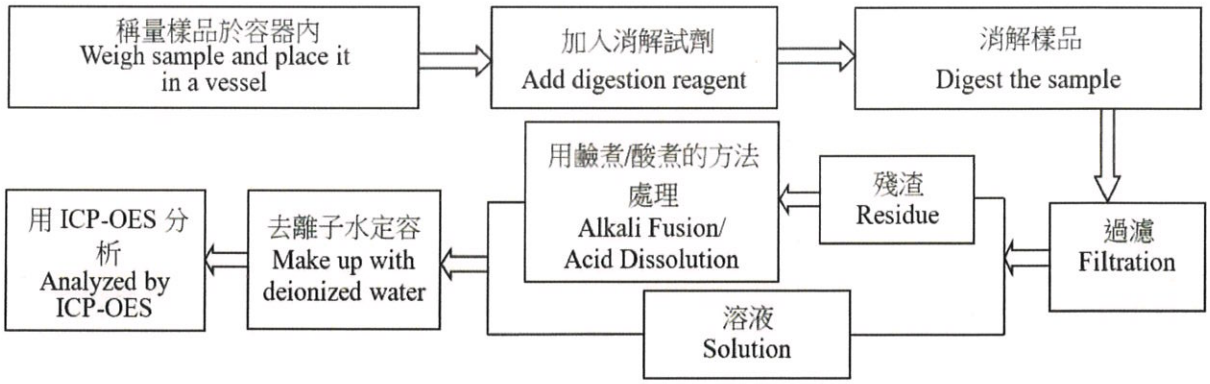
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檢測流程 Test Process

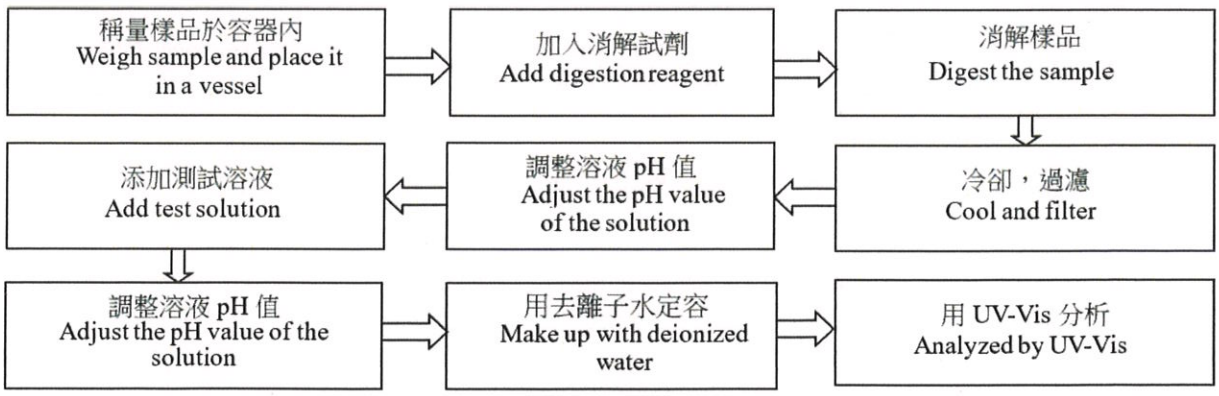
1. 鉛 Lead(Pb), 鎘 Cadmium(Cd)



2. 汞 Mercury(Hg)



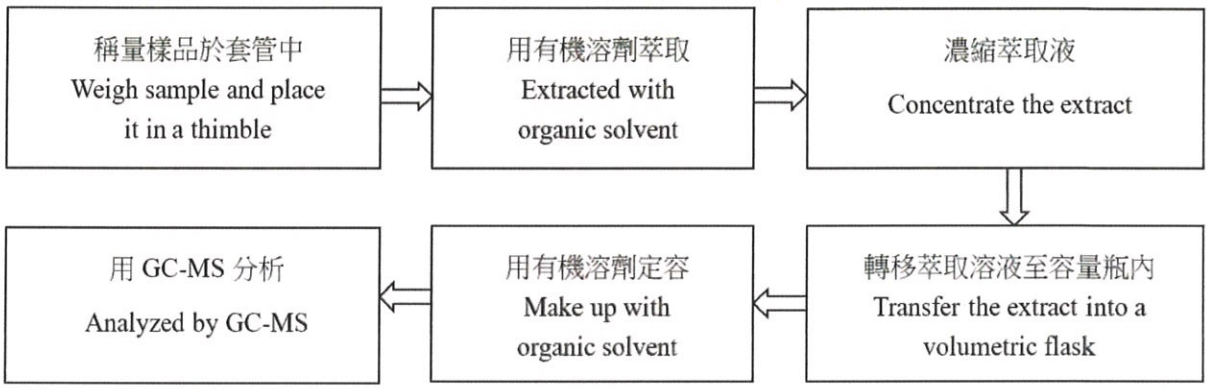
3. 六價鉻 Hexavalent Chromium(Cr(VI))



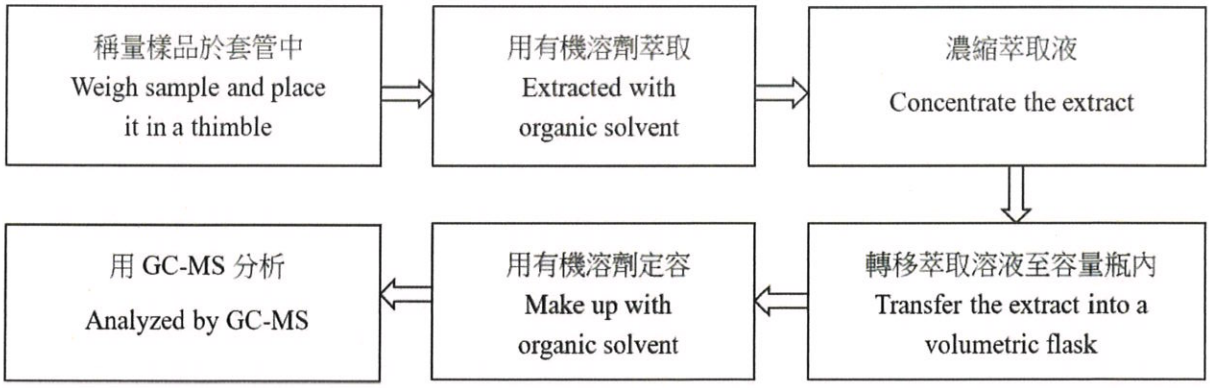
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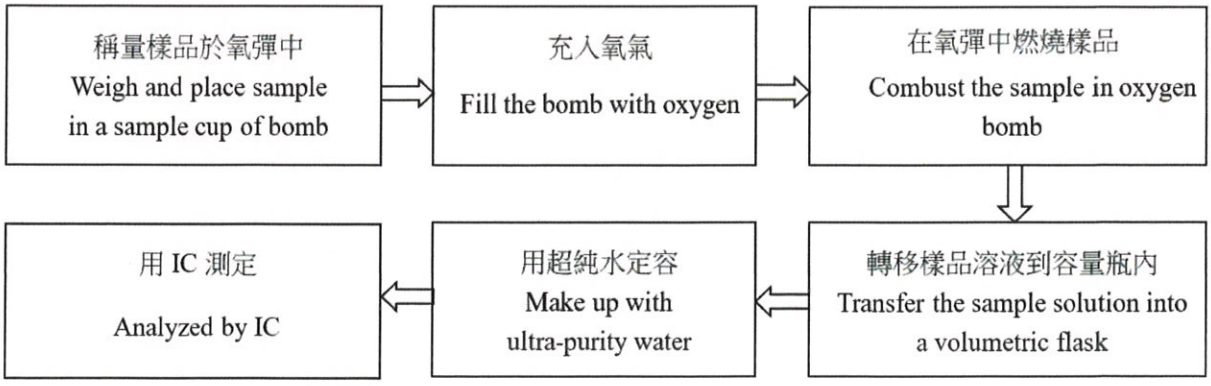
4. 多溴聯苯(PBBs)， 多溴二苯醚(PBDEs)
Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)



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



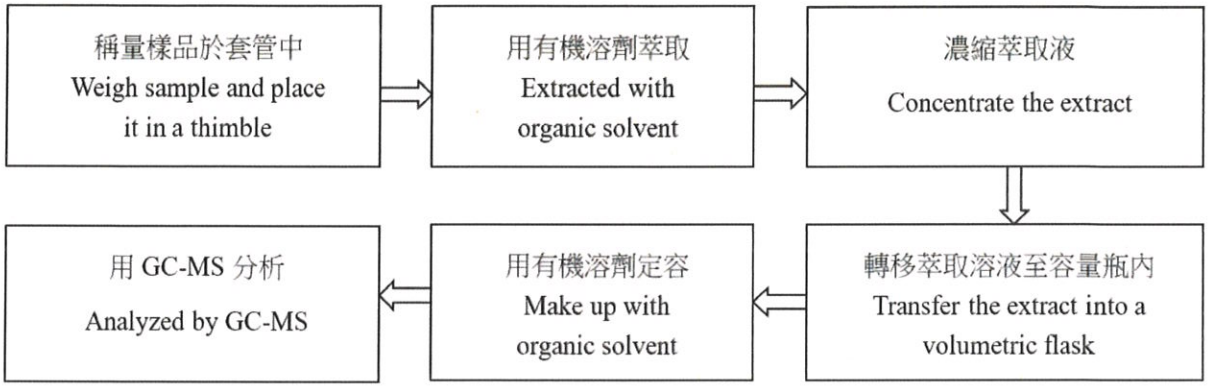
6. 氟(F)， 氯(Cl)， 溴(Br)， 碘(I)
Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)



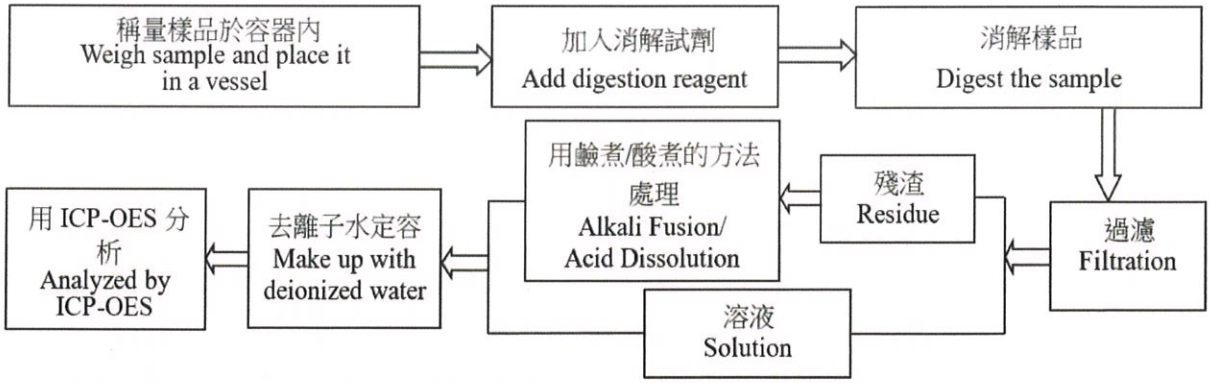
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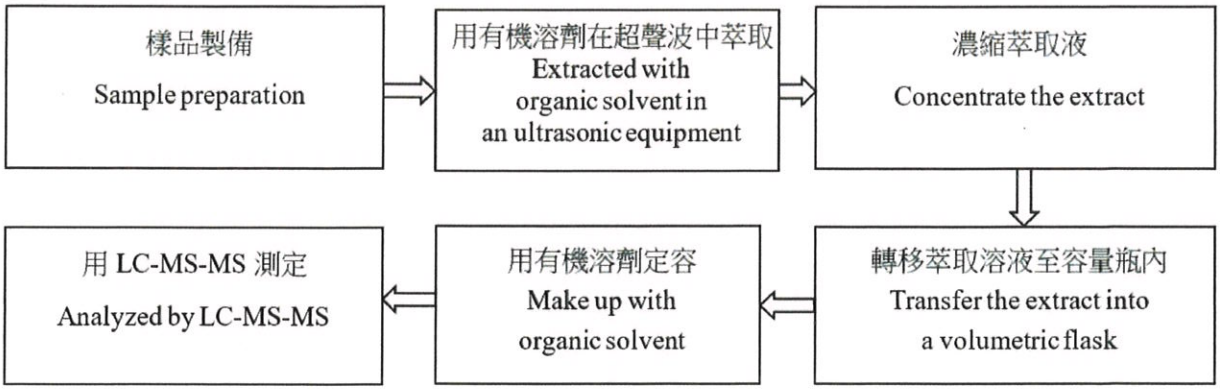
7. TSCA PBT 物質 TSCA PBT substance



8. 砷(As)， 鈹(Be)， 銻(Sb)
Arsenic(As), Beryllium(Be), Antimony(Sb)



9. 全氟辛酸類(PFOA)相關物質及其鹽， 全氟辛烷磺酸鹽(PFOS)及其相關物質
Perfluorooctanoic acid related substances and Its Salts, PFOS and Related Substances

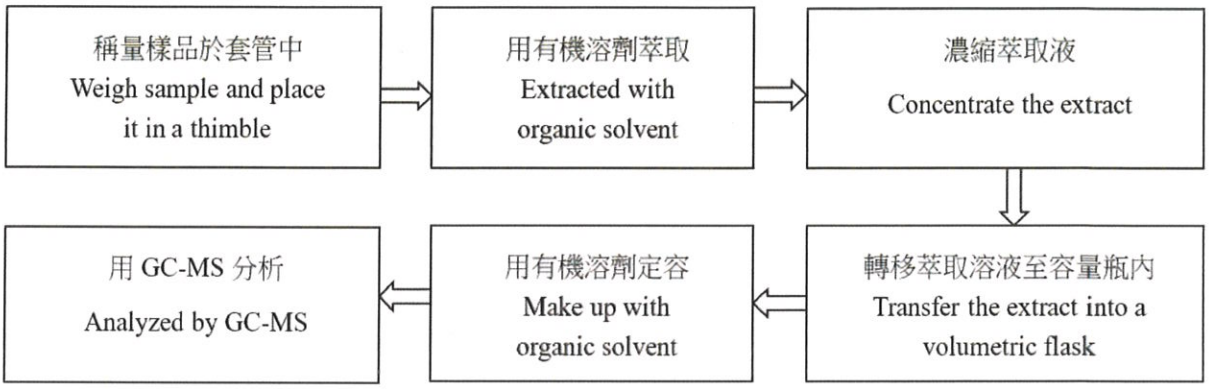


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10. 六溴環十二烷(HBCDD)
Hexabromocyclododecane (HBCDD)



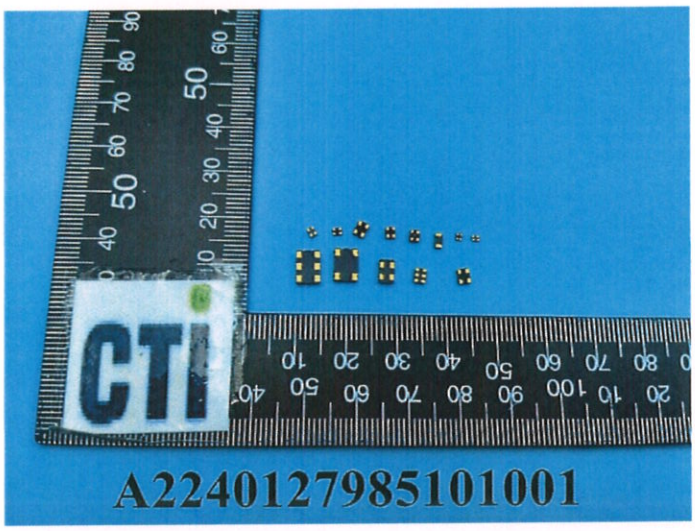
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樣品圖片

Photo(s) of the sample(s)



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