



檢測報告

Test Report

報告編號 A226040727010100101E
Report No. A226040727010100101E

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報告抬頭公司名稱 美麗微半導體股份有限公司 / 杭州美麗微電子有限公司
Company Name FORMOSA MICROSEMI CO., LTD. / HANGZHOU FORMOSA MICRO-ELECTRONIC CO., LTD.
地址 宜蘭縣宜蘭市梅洲二路 38 號 / 杭州市濱江區明德路 6 號
Address NO. 38, MEIZHOU 2ND RD., YILAN CITY, YILAN COUNTY 260023, TAIWAN (R.O.C.) / NO.6, MINGDE RD., BINJIANG DIST., HANGZHOU, CHINA

以下測試之樣品及樣品資訊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 高溫焊錫製程塑封裝產品
Sample Name 高溫焊錫製程塑封裝產品
樣品接收日期 2026.05.21
Sample Received Date May 21, 2026
樣品檢測日期 2026.05.21-2026.05.27
Testing Period May 21, 2026 to May 27, 2026

檢測要求 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)，全氟辛酸 (PFOA) 及其鹽，全氟辛烷磺酸 (PFOS) 及其鹽和相關物質，四溴雙酚 A (TBBP-A)，中鏈氯化石蠟(MCCPs)，六溴環十二烷 (HBCDD)進行測試。

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), Perfluorooctanoic acid (PFOA) and its salts, Perfluorooctanesulfonic acid (PFOS) and its salts & related substances, Tetrabromobisphenol A (TBBP-A), Middle Chain Chlorinated Paraffins (MCCPs), Hexabromocyclododecane (HBCDD) in the submitted sample(s).

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



馮智聰

馮智聰
實驗室經理 Laboratory Manager

日期 2026.05.29
Date

台灣華測檢測技術有限公司檢測中心

Testing Center, Centre Testing International (Taiwan) Co., Ltd.

No. R836716332
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5F-13, No. 9, Sec. 2, Nankan Rd., Luzhu Dist., Taoyuan, Taiwan

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結論 Conclusion

測試樣品 Tested Sample	依據標準/指令 According to standard/directive	結果 Result
提交樣品 Submitted Sample	歐盟 RoHS 指令 2011/65/EU 及其修訂指 令(EU) 2015/863 RoHS Directive 2011/65/EU with amendment (EU) 2015/863	符合 PASS

符合表示檢測結果滿足歐盟RoHS指令2011/65/EU及其修訂指令(EU) 2015/863要求的限值。

判定規則為不考慮量測不確定度。

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.

The decision rule: Uncertainty is not considered.

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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)	參考 IEC 62321-5:2013 Refer to IEC 62321-5:2013	ICP-OES
鎘 Cadmium (Cd)	參考 IEC 62321-5:2013 Refer to IEC 62321-5:2013	ICP-OES
汞 Mercury (Hg)	參考 IEC 62321-4:2013+AMD1:2017 CSV Refer to IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六價鉻 Hexavalent Chromium (Cr(VI))	參考 IEC 62321-7-2:2017 Refer to IEC 62321-7-2:2017	UV-Vis
多溴聯苯 Polybrominated Biphenyls (PBBs)	參考 IEC 62321-6:2015 Refer to IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	參考 IEC 62321-6:2015 Refer to IEC 62321-6:2015	GC-MS
鄰苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	參考 IEC 62321-8:2017 Refer to IEC 62321-8:2017	GC-MS
全氟辛酸 (PFOA) 及其鹽 Perfluorooctanoic acid (PFOA) and its salts	參考 EN 17681-1:2025 Refer to EN 17681-1:2025	LC-MS-MS
全氟辛烷磺酸 (PFOS) 及其鹽和 相關物質 Perfluorooctanesulfonic acid (PFOS) and its salts & related substances	參考 EN 17681-1:2025 Refer to EN 17681-1:2025	LC-MS-MS
四溴雙酚 A Tetrabromobisphenol A (TBBP-A)	參考 US EPA 3550C:2007 & GB/T 32889:2016 Refer to US EPA 3550C:2007 & GB/T 32889:2016	GC-MS
中鏈氯化石蠟 Middle Chain Chlorinated Paraffins (MCCPs)	參考 US EPA 3550C:2007 & US EPA 8270E:2018 Refer to US EPA 3550C:2007 & US EPA 8270E:2018	GC-MS(NCI)
六溴環十二烷 Hexabromocyclododecane (HBCDD)	參考 IEC 62321-9:2021 Refer to IEC 62321-9:2021	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	限值 Limit
	001		
鉛 Lead (Pb)	5834 mg/kg #	2 mg/kg	1000 mg/kg
鎘 Cadmium (Cd)	N.D.	2 mg/kg	100 mg/kg
汞 Mercury (Hg)	N.D.	2 mg/kg	1000 mg/kg
六價鉻 Hexavalent Chromium (Cr(VI))	N.D.	8 mg/kg	1000 mg/kg

測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL	限值 Limit
	001		
多溴聯苯 Polybrominated Biphenyls (PBBs)			
一溴聯苯 Monobromobiphenyl	N.D.	5 mg/kg	1000 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	限值 Limit
	001		
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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測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL	限值 Limit
	001		
鄰苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)			
鄰苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
鄰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
鄰苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
鄰苯二甲酸二異丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg

測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL
	001	
四溴雙酚 A Tetrabromobisphenol A (TBBP-A)	N.D.	5 mg/kg

測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL
	001	
中鏈氯化石蠟 Middle Chain Chlorinated Paraffins (MCCPs)	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)	CAS No.	結果 Result	方法檢出限 MDL
		001	
全氟辛酸 (PFOA) 及其鹽 Perfluorooctanoic acid (PFOA) and its salts			
全氟辛酸 Perfluorooctanoic acid (PFOA)	335-67-1	N.D.	0.01 mg/kg
全氟辛酸銨 Ammonium pentadecafluorooctanoate (APFO)*	3825-26-1	N.D.	0.01 mg/kg
全氟辛酸鈉 Sodium perfluorooctanoate (PFOA-Na)*	335-95-5	N.D.	0.01 mg/kg
全氟辛酸鉀 Potassium perfluorooctanoate (PFOA-K)*	2395-00-8	N.D.	0.01 mg/kg
全氟辛酸銀 Silver perfluorooctanoate (PFOA-Ag)*	335-93-3	N.D.	0.01 mg/kg
全氟辛氟 Perfluorooctanoyl fluoride (PFOA-F)*	335-66-0	N.D.	0.01 mg/kg

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測試項目 Tested Item(s)	CAS No.	結果 Result	方法檢出限 MDL
		001	
全氟辛烷磺酸 (PFOS) 及其鹽和相關物質 Perfluorooctanesulfonic acid (PFOS) and its salts & related substances			
全氟辛烷磺酸 Perfluorooctane Sulfonates (PFOS)	1763-23-1	N.D.	0.01 mg/kg
全氟辛基磺酸鉀 Perfluorooctanesulfonic acid, potassium salt (PFOS-K)*	2795-39-3	N.D.	0.01 mg/kg
全氟辛基磺酸鋰 Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)*	29457-72-5	N.D.	0.01 mg/kg
全氟辛基磺酸鈉 Sodium perfluorooctane sulfonate (PFOS-Na)*	4021-47-0	N.D.	0.01 mg/kg
全氟辛基磺酸鎂 1-Octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-, magnesium salt (2:1) (PFOS-Mg)*	91036-71-4	N.D.	0.01 mg/kg
全氟辛基磺酸銨 Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH ₄)*	29081-56-9	N.D.	0.01 mg/kg
全氟辛基磺酸二乙醇銨 Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(OH) ₂)*	70225-14-8	N.D.	0.01 mg/kg
全氟辛基磺酸四乙基銨 Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C ₂ H ₅) ₄)*	56773-42-3	N.D.	0.01 mg/kg
全氟辛基磺酸二癸二甲基銨 Didecyl dimethyl ammonium perfluorooctane sulfonate (PFOS-DDA)*	251099-16-8	N.D.	0.01 mg/kg
全氟辛基磺酰氟 Perfluoro-1-octanesulfonyl fluoride (PFOSF)*	307-35-7	N.D.	0.01 mg/kg
全氟辛基磺酸哌啶 Piperidine 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluorooctanesulfonate*	71463-74-6	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-辛磺酰胺 N-Methylperfluoro-1-octanesulfonamide (N-Me-FOSA)	31506-32-8	N.D.	0.05 mg/kg
N-乙基全氟辛基磺酰胺乙醇 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-辛基磺酰胺 2-(N-Methylperfluoro-1-octanesulfonamido)-ethanol (N-Me-FOSE)	24448-09-7	N.D.	0.05 mg/kg
全氟辛基磺酰胺 Perfluorooctanesulfonamide (PFOSA)	754-91-6	N.D.	0.01 mg/kg

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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(整體測試) Electronic components (Tested as a whole)

備註: 對於檢測鉛, 鎘, 汞之樣品已消解完全。

-N.D. = 未檢出 (小於方法檢出限)

-mg/kg = ppm = 百萬分之一

-1000 mg/kg = 0.1%

-表列 PFAS 物質僅為範例, 並不包含所有同碳數之 PFAS 鹽類。

-*=該物質的結果由其特定化合物的結果換算而來。

-#=根據客戶聲明, 樣品涉及歐盟 RoHS 指令 2011/65/EU 豁免項第 7(a) 條: 高溫熔融焊料中的鉛 (即: 鉛基合金中鉛含量 \geq 85% (Wt))。

-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。

-本報告中樣品測試結果引自於報告 A2260407270101001E。

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

-MDL = Method Detection Limit

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

-mg/kg = ppm = parts per million

-1000 mg/kg = 0.1%

-The PFAS listed are examples only. The list does not include all the PFAS salts with the same carbon number.

-*=Result(s) shown of the substance(s) is/ are converted from the result(s) of certain compound(s).

-#=According to the client's statement, the material of the sample(s) fall into exemption item 7(a) according to EU Directive 2011/65/EU: Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).

-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.

-The test result(s) of sample is(are) presented in reference to the result(s) that reported in No. A2260407270101001E.

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.

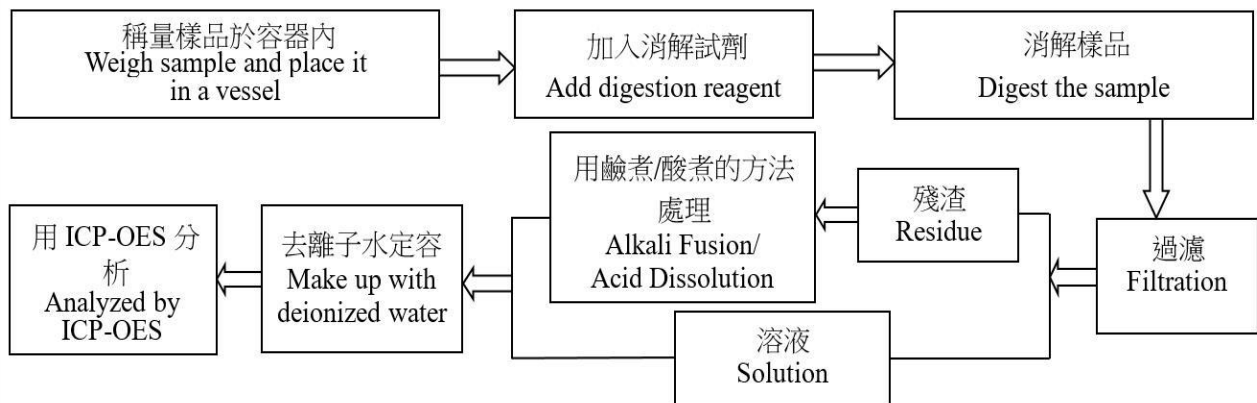
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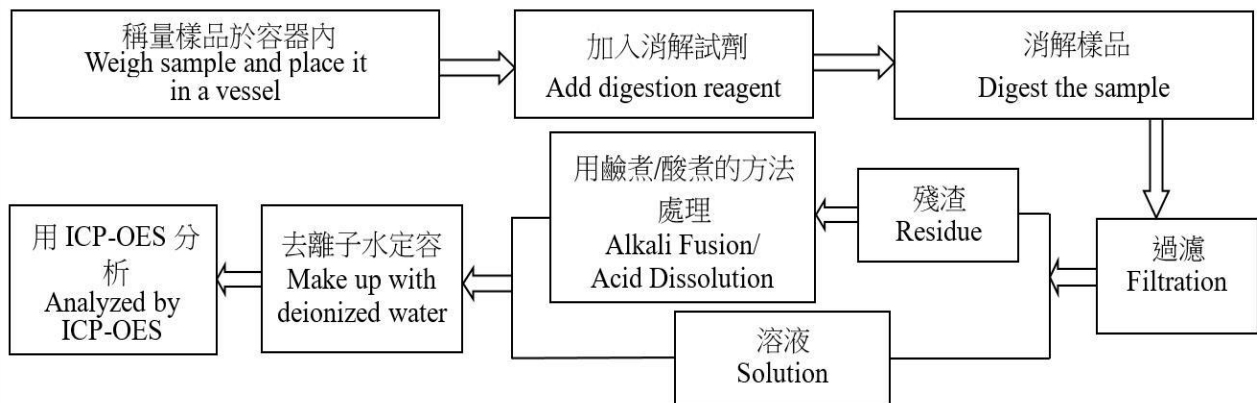
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檢測流程 Test Process

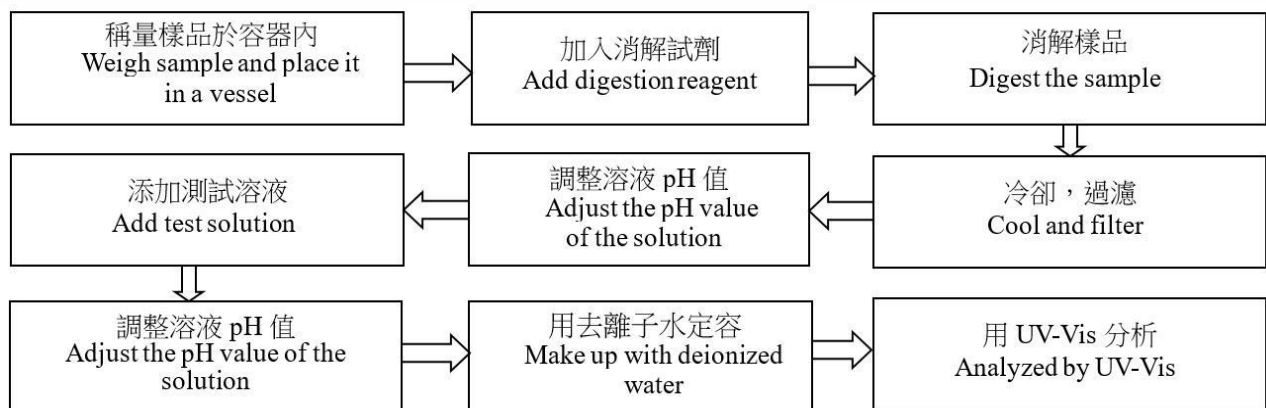
1. 鉛 Lead (Pb), 鎘 Cadmium (Cd)



2. 汞 Mercury (Hg)



3. 六價鉻 Hexavalent Chromium (Cr(VI))

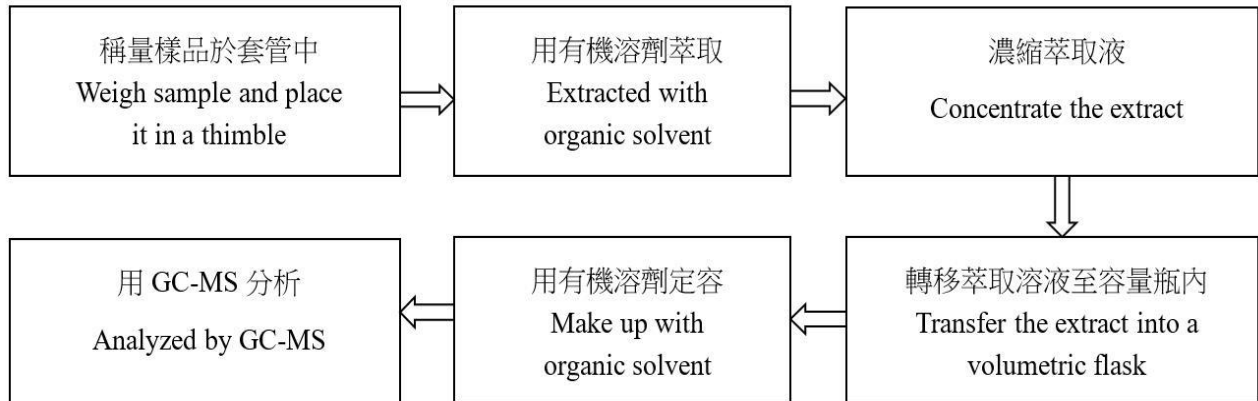


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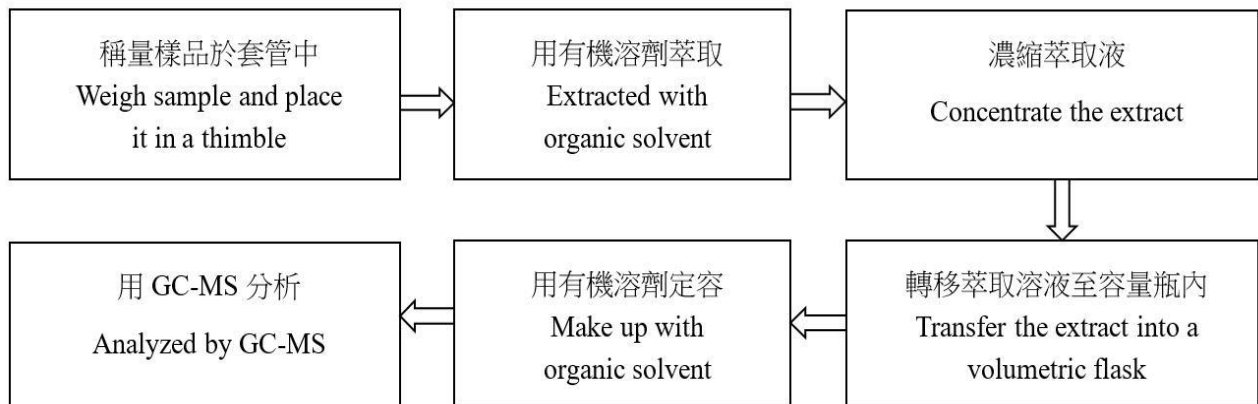
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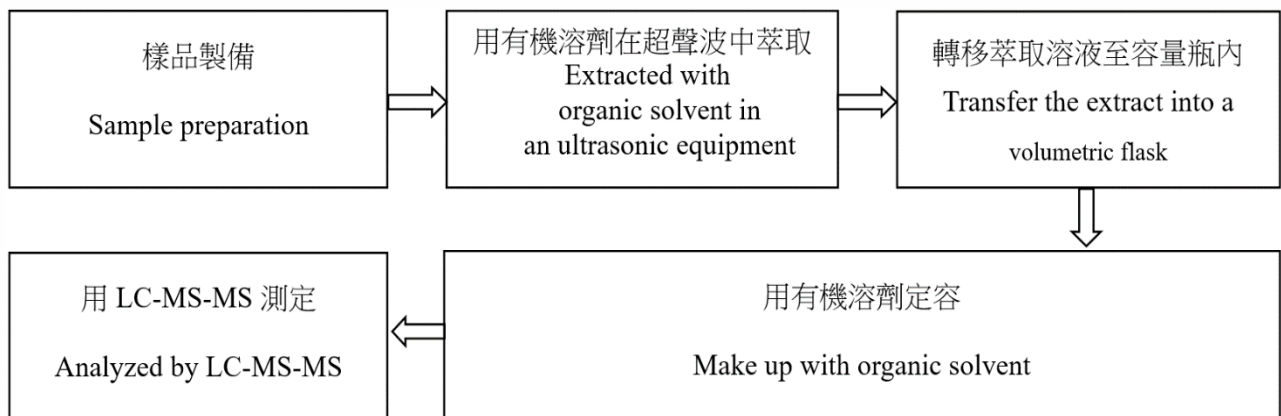
4. 多溴聯苯 Polybrominated Biphenyls (PBBs), 多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)



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



6. 全氟辛酸 (PFOA) 及其鹽 Perfluorooctanoic acid (PFOA) and its salts, 全氟辛烷磺酸 (PFOS) 及其鹽和相關物質 Perfluorooctanesulfonic acid (PFOS) and its salts & related substances

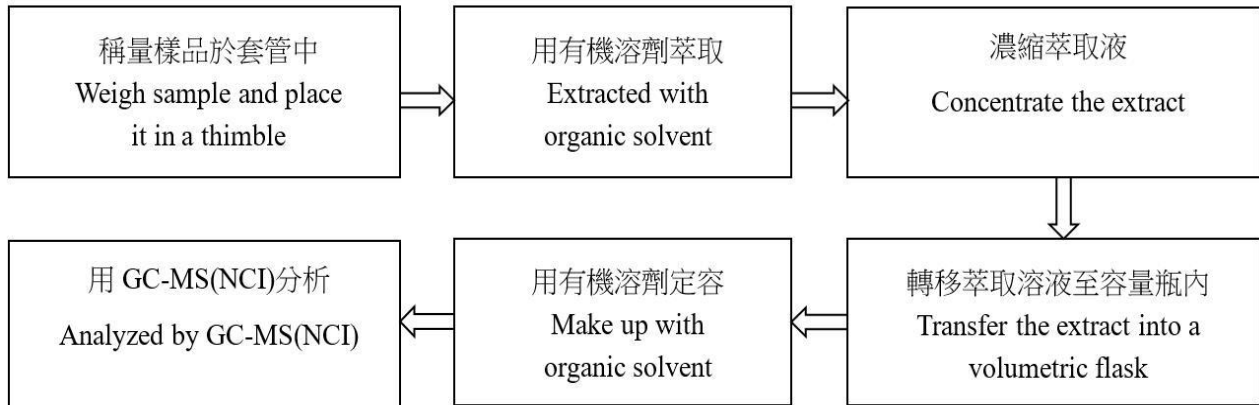


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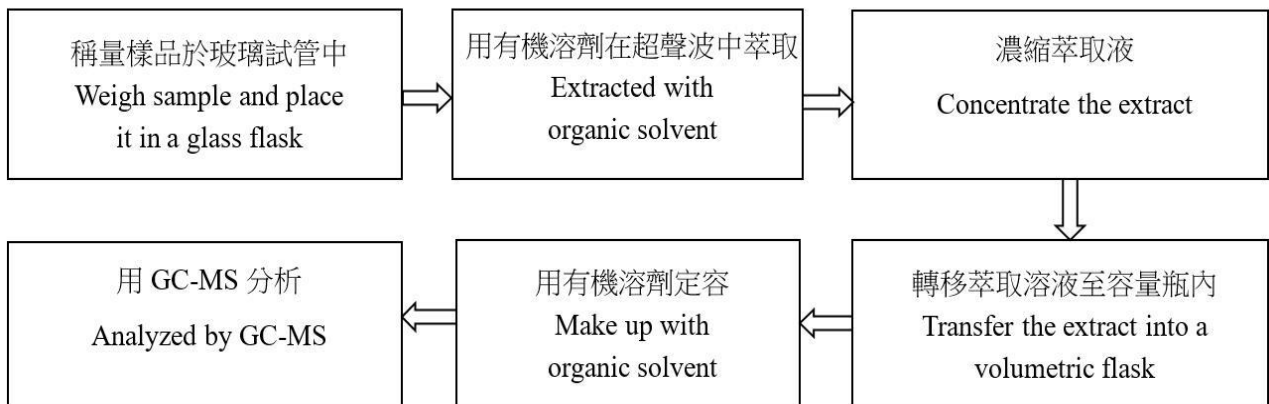
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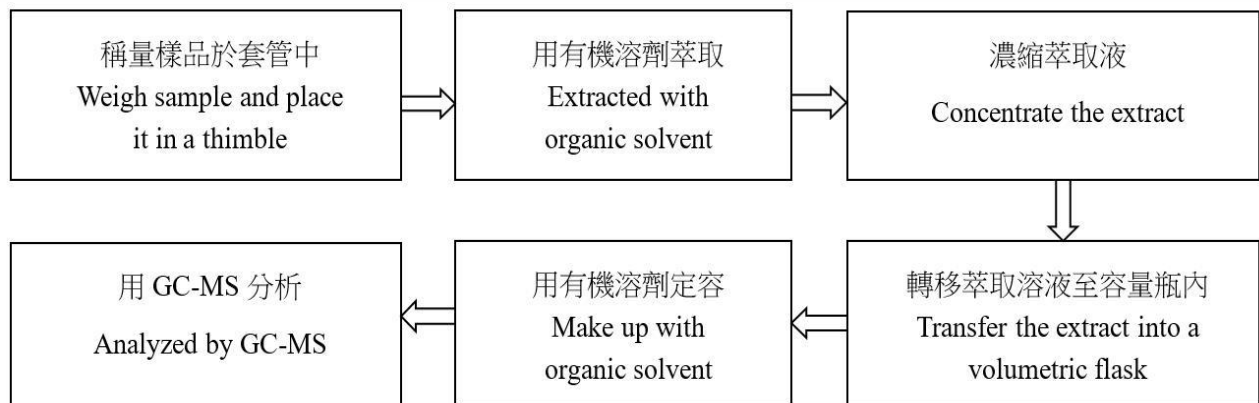
7. 中鏈氯化石蠟 Middle Chain Chlorinated Paraffins (MCCPs)



8. 四溴雙酚 A Tetrabromobisphenol A (TBBP-A)



9. 六溴環十二烷 Hexabromocyclododecane (HBCDD)



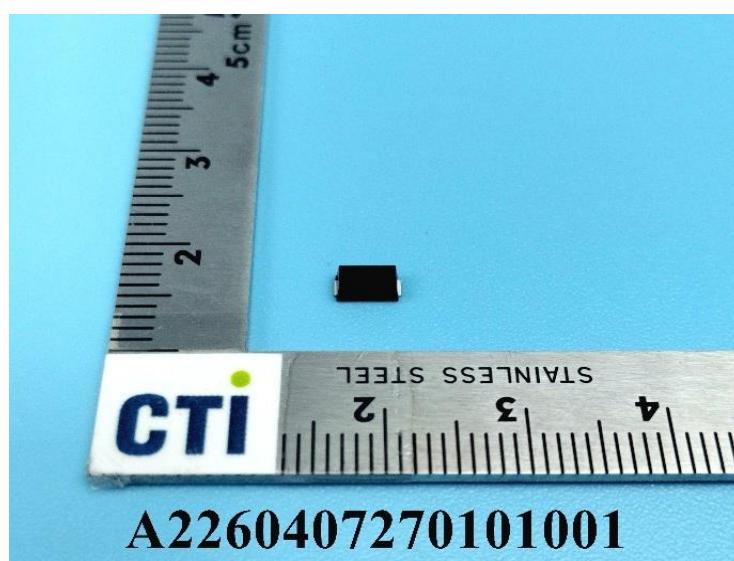
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樣品圖片

Photo(s) of the sample(s)



聲明 Statement :

1. 本報告無批准人簽字、“專用章”及報告騎縫章無效；
This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. 報告抬頭公司名稱及位址、樣品及樣品資訊由申請者提供，申請者應對其真實性負責，CTI 未核實其真實性；
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. 本報告檢測結果僅對受測樣品負責；
The result(s) shown in this report refer(s) only to the sample(s) tested;
4. 未經 CTI 書面同意，不得部分複製本報告；
Without written approval of CTI, this report can't be reproduced except in full;
5. 如報告中的英文內容與中文內容有差異，以中文為準。
In case of any discrepancy between the English version and Chinese version of the reports (if generated), the Chinese version shall prevail.

*** 報告結束 ***
*** End of Report ***

附錄 Appendix

客戶參考資訊 Client Reference Information

4GBJ / A-405 / ASM-10A / ASM-10A-L / ASM-10C / BCT / BJ / BL / BU / DB / DBF / DBL / DBLS / DBS / DF / DFS / DFS-1 / DO-14 / DO-15 / DO-27 / DO-201AD / DO-201AE / DO-218 / DO-34 / DO-405 / DO-41 / DPAK(TO-252) / DPAK-1(TO-252-1) / DPAK-2(TO-252-2) / D2PAK(TO-263) / D2PAK-1(TO-263-1) / D2PAK-7(TO-263-7) / D3K / FH / FHV / FV5M / FV5M-1 / FV5M-2 / FH10M / GBL / GBJ / GBP / GBPC-W / GBPC-T / GBU / GBU-1 / GH / GT / HV / HV03 / HV05 / HV07 / ITO-220AB / ITO-220AB-W / ITO-220AC / KBL / KBJ / KBP / KBP-1 / KBPC-3 / KBPC-6 / KBPC-8 / KBPC-MT / KBPC-MW / KBPC-PS / KBPC-PT / KBPC-PW / KBU / LDBS / LMBS / LMDS(TBS) / LMDS-1 / MBF / MBLS / MBLS-1 / MBLS-7 / MD / MDB / MDLS / MDS(TO-269AA) / MDS-1 / MDS-6 / MINI-MELF(DO-213AA/GL34) / MINI-SMA(SOD-123) / MP / MT-35 / P0600M / P6 / P600 / QFNB / R-1 / R-3 / R-6 / R6 / RB-15 / RS / SMA / MELF(DO-213AB) / SMA-F / SMA-FL / SMA-HFL / SMA-HS / SMA-HS1 / SMA-HS2 / SMA-HSFL / SMA-HSFL1 / SMA-HSFL2 / SMA-HST / SMA-L / SMA-N / SMA-NT / SMA-W / SMA-S / SMA-SF / SMB(DO-214AA) / SMB-F(DO-214AA) / SMB-FL / SMB-HS / SMB-HSFL / SMB-S / SMC (DO-214AB) / SMC-F(DO-214AB) / SMC-T1 / SMC-T2 / SMC-T3 / SMC-T4 / SOD-123H / SOD-123H1 / SOD-123HT / SOD-123HT1 / SOD-123MFL / SOD-123NT / SOD-123T / SOD-123S / SOD-123S1 / SOD-123S-1 / SOD-123S-2 / SOD-123ST2 / SOD-123S-3 / SOD-123S-4 / SOD-123S-5 / SOD-123S7 / SOD-123S8 / SOD-123SA1 / SOD-123SA3 / SOD-123ST / SOD-123ST-1 / SOD-123ST-2 / SOD-323 / SOD-323HE / SOD-323S / SOD-323ST1 / SOD-323ST2 / SOD-323FLT / sTOLL-5L(MO-319A) / T2PAK (T2PAK-P7) / T4532 / T5454 / TO-92(TO-226AA) / TO-92S / TO-126 / TO-220 / TO-220AB / TO-220AC / TO-247AC / TO-247S / TO-251 / TO-251AA / TO-251AB / TO-251S / TO-252AA / TO-252-4L / TO-256 / TO-262(I2PAK) / TO-277 / TO-277A / TO-277B / TO-3P(TO-247) / TO-3PN / UDLS / W / WOB / T1010P4 / MBSL / DFN2020-6 (T2020P6) / DFN1006-3 (T1006P3) / DFN2030-6 (T2030P6) / DFN3333-8(T3333P8) / DFN5060-8(T5060P8) / DFN5060 Dual (T5060P8 Dual) / DFN3030-8(T3030P8) / DFN5X6 (DFN5060) / PPAK5X6 / DFN8080-3(T8080P3) / DFN8080-8(T8080P8) / TOLL-8L (MO-299A) / T5060P8 Thin (DFN5060-8 Thin) / SOP8 (SOP-08)

聲明 Statement:

1. 附錄內容由申請者提供，申請者應對其真實性負責，CTI 未核實其真實性。
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2. 附錄內容為 A226040727010100101E 報告的補充。
The Appendix Information is/are the supplement(s) for the Report A226040727010100101E.