

檢測報告 Test Report

報告編號 A2220442506149001E
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報告抬頭公司名稱 瑞昇金屬工業股份有限公司 / 南通鈞元電子材料工業有限公司
Company Name REDSUN METAL IND. CO., LTD / NANTONG CHUN-YUAN
shown on Report EDELECTRONICS IND. CO., LTD.
地 址 320030 桃園市中壢區定寧路 2 號 / 江蘇省南通市如東縣洋口化學工業園區黃海三路振洋二路交叉
Address NO.2, DINGNING RD., ZHONGLI DIST., TAOYUAN CITY 320030 /
NANTONG JU-TUNG HSIEN, YANG KOU CHEMICAL INDUSTRIAL
AREA, RUDONG, JIANGSU

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 SOLDER PASTE (錫錫膏)

樣品顏色 Color 銀

樣品接收日期 2022.12.09

Sample Received Date Dec. 9, 2022

樣品檢測日期 2022.12.09-2022.12.15

Testing Period Dec. 9, 2022 to Dec. 15, 2022

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), 鉍(Be), 銻(Sb), 六溴環十二烷(HBCDD), 氟(F), 氯(Cl), 溴(Br), 碘(I), 全氟辛烷磺酸(PFOS), 全氟辛酸(PFOA), 鄰苯二甲酸酯進行測試。

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), Beryllium(Be), Antimony(Sb), Hexabromocyclododecane (HBCDD), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Perfluorooctane Sulfonates(PFOS), Perfluorooctanoic Acid(PFOA), Phthalates 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).

主 檢
Tested by

審 核
Reviewed by

批 准
Approved by

日 期
Date

2022.12.15

陳凱敏
實驗室經理 Lab Manager



No. T172795489

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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。

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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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 62321-7-1:2015	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
鈹 Beryllium(Be)	參考 US EPA 3050B:1996 & US EPA 6010D:2018 Refer to US EPA 3050B:1996 & US EPA 6010D:2018	ICP-OES
銻 Antimony(Sb)	參考 US EPA 3050B:1996 & US EPA 6010D:2018 Refer to US EPA 3050B:1996 & US EPA 6010D:2018	ICP-OES
六溴環十二烷 Hexabromocyclododecane (HBCDD)	IEC 62321-9:2021	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
全氟辛烷磺酸 Perfluorooctane Sulfonates(PFOS)	參考 DIN CEN/TS 15968:2010 Refer to DIN CEN/TS 15968:2010	LC-MS-MS/LC-MS
全氟辛酸 Perfluorooctanoic Acid(PFOA)	參考 DIN CEN/TS 15968:2010 Refer to DIN CEN/TS 15968:2010	LC-MS-MS/LC-MS
鄰苯二甲酸酯 Phthalates	IEC 62321-8:2017	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
鉛 Lead (Pb)	930199 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.▼	0.10 µg/cm ² (LOQ)	1000 mg/kg

測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL	限值 Limit
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	

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測試項目 Tested Item(s)	結果 Result	方法檢出限 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	

測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL	限值 Limit
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
鈹 Beryllium (Be)	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
銻 Antimony (Sb)	N.D.	2 mg/kg

測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL
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
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

測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL
全氟辛烷磺酸 Perfluorooctane Sulfonates (PFOS)	N.D.	0.010 mg/kg

測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL
全氟辛酸 Perfluorooctanoic Acid (PFOA)	N.D.	0.010 mg/kg

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測試項目 Tested Item(s)	結果 Result	方法檢出限 MDL
鄰苯二甲酸酯 Phthalates		
鄰苯二甲酸二己酯 Di-n-hexyl phthalate (DNHP/DHEXP) CAS#:84-75-3	N.D.	50 mg/kg
鄰苯二甲酸二正辛酯 Di-n-octyl phthalate (DNOP) CAS#:117-84-0	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
鄰苯二甲酸二異癸酯 Di-iso-decyl phthalate (DIDP) CAS#:26761-40-0,68515-49-1	N.D.	50 mg/kg
* ¹ 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.	100 mg/kg
* ¹ 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.	100 mg/kg
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

樣品/部位描述 銀色金屬
Sample/Part Description Silvery metal

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備註: 對於檢測鉛, 鎘, 汞, 鉍, 銻之樣品已消解完全。

-N.D. = 未檢出 (小於方法檢出限或定量限)

-mg/kg = ppm = 百萬分之一

-1000 mg/kg = 0.1%

-LOQ = 定量限, 六價鉻的定量限為 $0.10 \mu\text{g}/\text{cm}^2$

-▼六價鉻濃度小於 $0.10 \mu\text{g}/\text{cm}^2$, 樣品未檢出六價鉻。

-*=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))。

-*¹=由於這些物質是 UVCB 物質(未知成分或可變成分的, 複雜反應物或生物材料的物質), 由各種不同的成分組成, 所以這些物質的測試結果是由選定的具有代表性的物質的主要組成成分的測試結果換算而來的。

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

-*= According to the client's statement, the material of the sample(s) fall into exemption items 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).

-*¹=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.

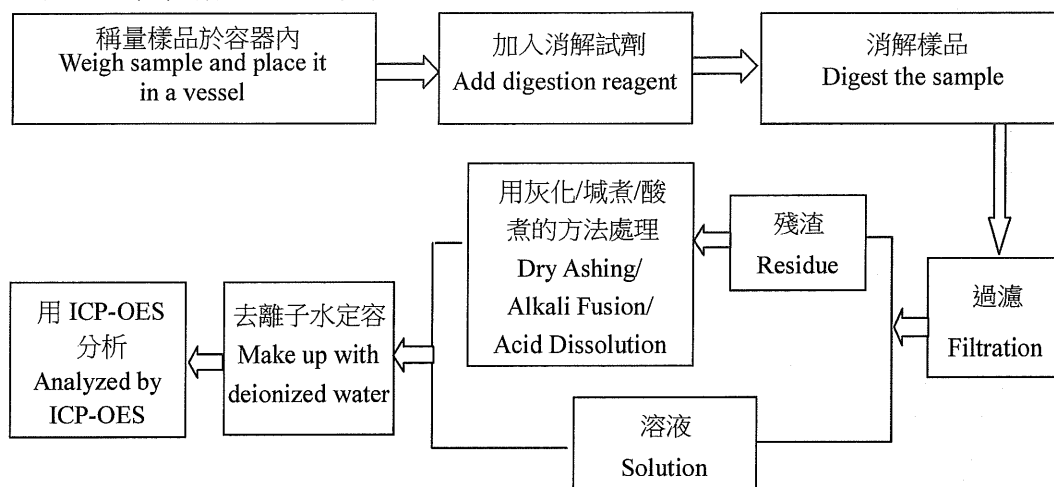
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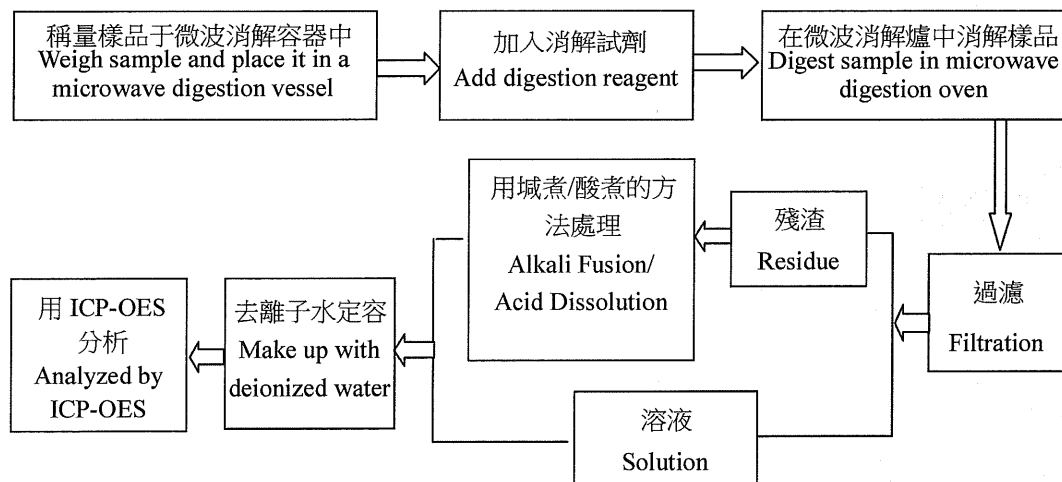
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檢測流程 Test Process

1. 鉛 Lead (Pb), 鎘 Cadmium (Cd)



2. 汞 Mercury (Hg)

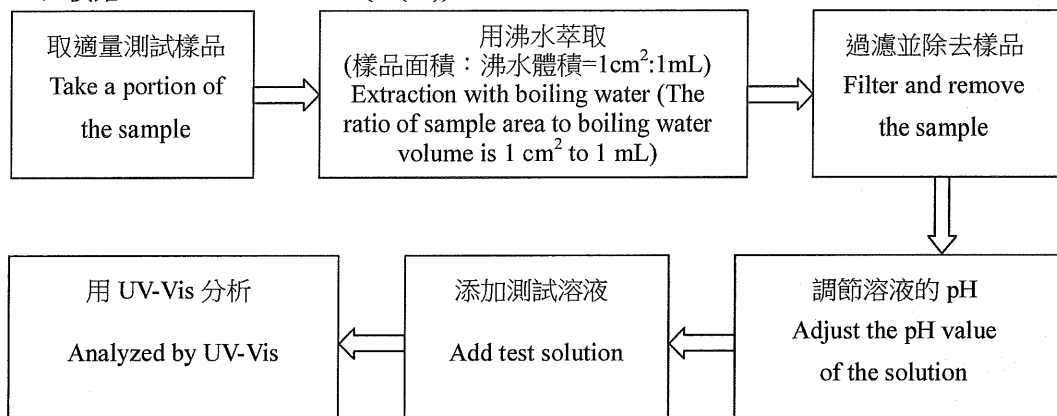


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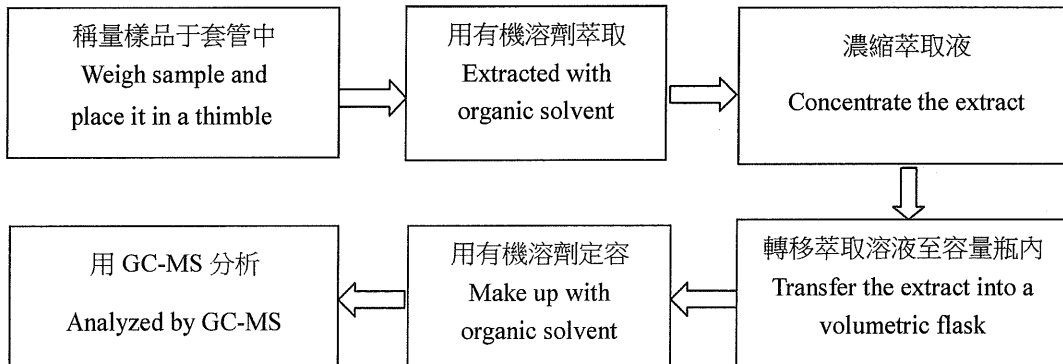
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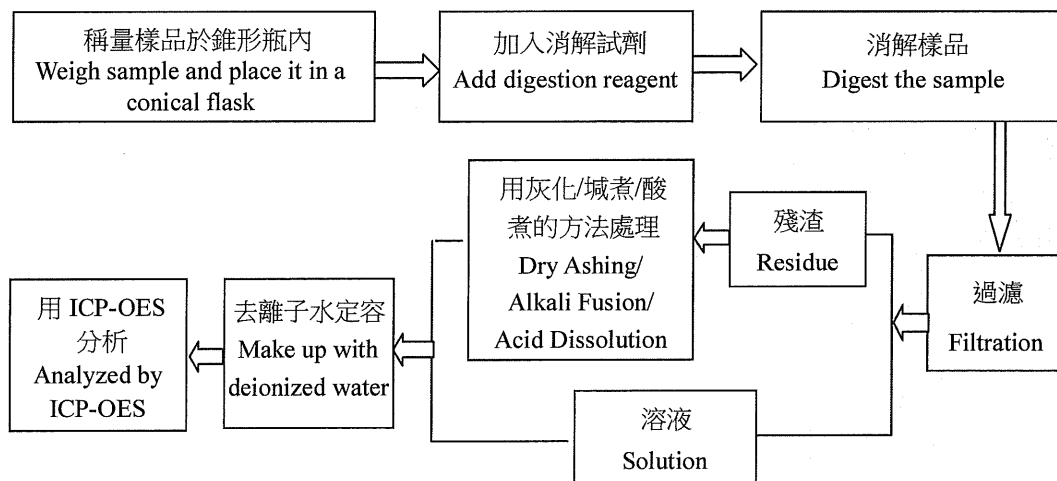
3. 六價鉻 Hexavalent Chromium (Cr(VI))



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



5. 鈹 Beryllium(Be), 銻 Antimony(Sb)

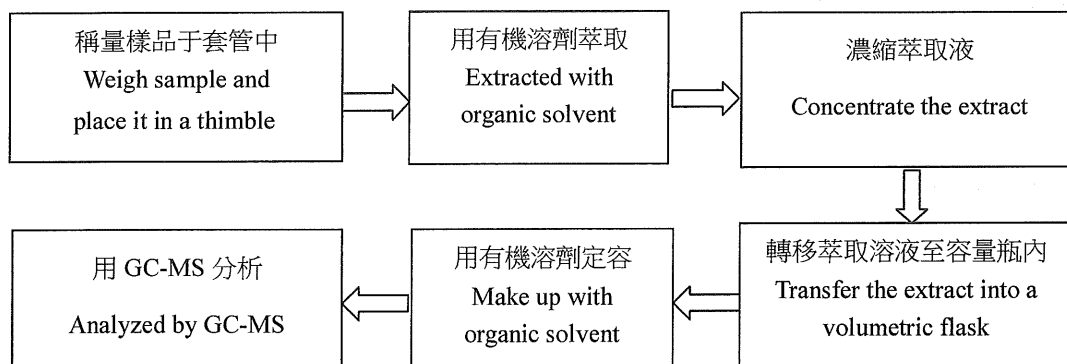


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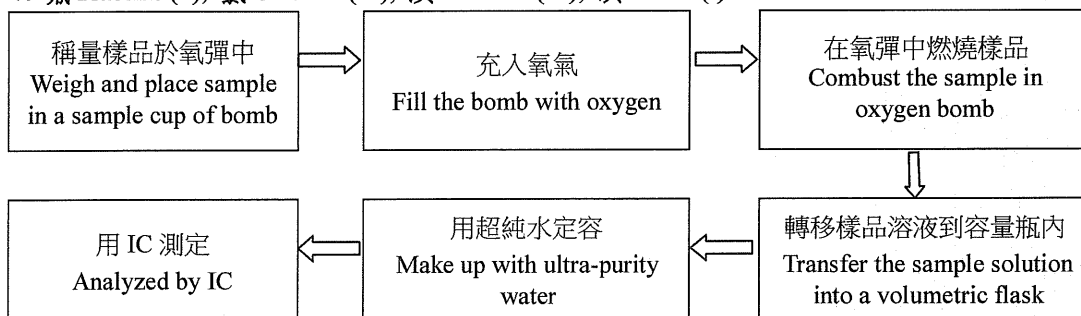
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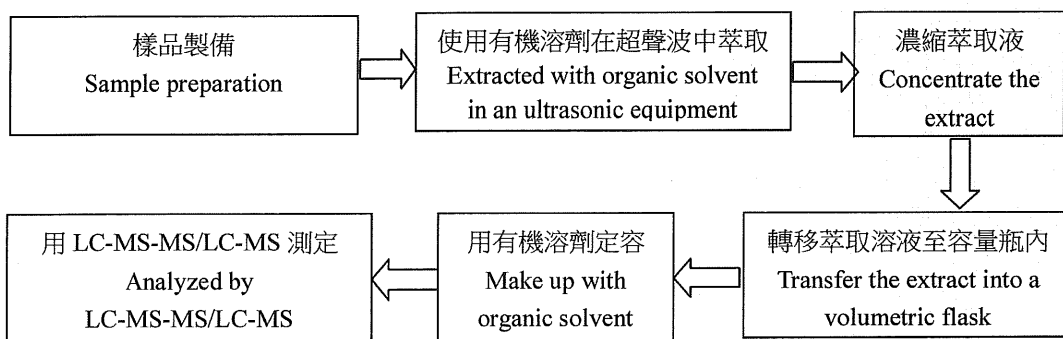
6. 六溴環十二烷 Hexabromocyclododecane (HBCDD)



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



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

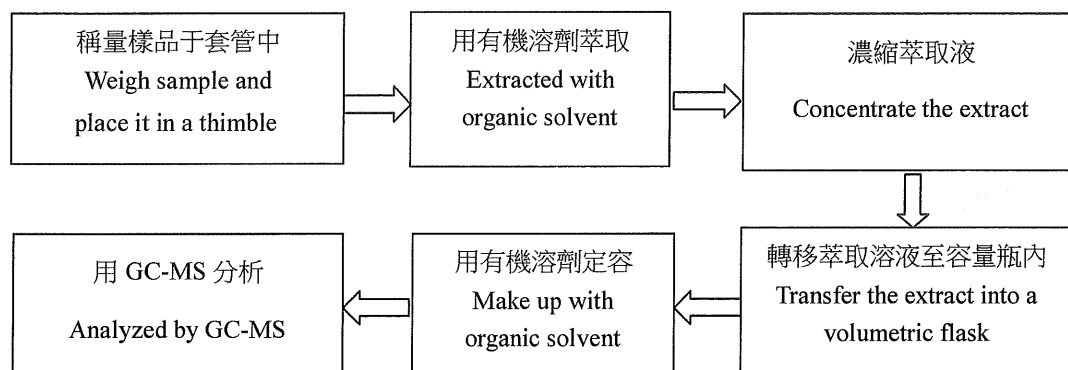


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9. 鄰苯二甲酸酯 Phthalates



CTI 华测检测

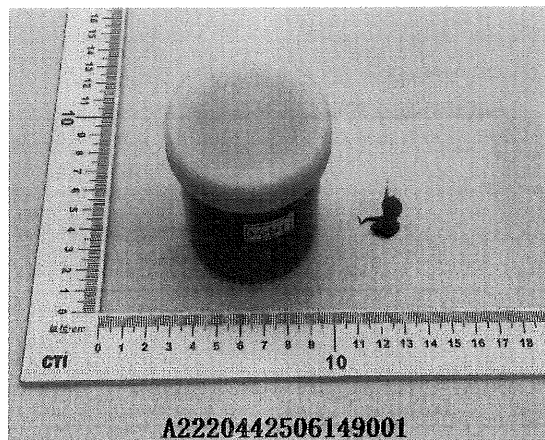
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樣品圖片

Photo(s) of the sample(s)



聲明 Statement :

1. 檢測報告無批准人簽字、“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地址、樣品及樣品信息由申請者提供，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；

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In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** 報告結束 ***

*** End of Report ***

附錄 Appendix

客戶參考信息 Client Reference Information

B280P3202J、B280P3202-8-1、B280P3202G-11、B280J8882A、B280J8882C、B280M3202J、B280J8882G2、B280J8882G3、B280J8882G4、B280J8882P、B280JPIN6G、P280MJ882L、P280MJ202L、P280MJ882P、P280J202M、S280MJ882M、S280MJ202L、S280J202L、NCY-40-280、B280P32590、SH925N-5N、SH925N-8-1N、PH925N-9K...等 B280 系列

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。

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

2. 附錄內容為 A2220442506149001E 報告的補充。

The Appendix Information is/are the supplement(s) for the Report A2220442506149001E.

CTI