



TEST REPORT

Lab No. : (6220)057-0190
Date : March 06, 2020
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APPLICANT
申請人 : HON HAI PRECISION IND.CO., LTD.
No. 2, Ziyou St., Tucheng Dist, New Taipei City 23678, Taiwan (R.O.C.)
鴻海精密工業股份有限公司
23678 新北市土城區自由街 2 號

CONTACT PERSON
聯絡人 : —

DATE OF SUBMISSION
送樣日期 : February 26, 2020
2020 年 02 月 26 日

PERFORMANCE PERIOD
測試日期 : February 26, 2020 to March 05, 2020
2020 年 02 月 26 日至 2020 年 03 月 05 日

SAMPLE DESCRIPTION
樣品描述 : POTASSIUM GOLD CYANIDE
金氰化鉀

ITEM NO.
產品型號 : 903-0000-020

REMARK

If there are questions or concerns on this report, please contact:
若有任何疑問或諮詢, 請以 email 與我們聯絡

chemical.inquiry@tw.bureauveritas.com/
vico.lin@bureauveritas.com

BUREAU VERITAS CONSUMER PRODUCTS SERVICES
(H.K.) LIMITED, TAIWAN BRANCH

PREPARED BY : Tiffany Chin

VICO LIN
MANAGER
ANALYTICAL DEPARTMENT

C/N /TC/JK



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Sample Description Assigned by Laboratory:

實驗室對樣品的描述:

| Tested item 測試部件 | |
|------------------|---------------------|
| 1. | White powder / 白色粉末 |

Note 註解:

N.D. = Not Detected (低於偵測極限) - = Empty (空白)
mg/kg = milligram per kilogram = ppm (毫克/公斤, 百萬分之一)
% = percent 百分率 10000 mg/kg = 1 %
ppb = part(s) per billion (十億分之一) 1 mg/kg = 1 ppm = 1 000 ppb

**Photo of the Submitted Sample
委送樣品照片**



Sample



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TEST RESULT 測試結果

**Heavy Metals and Flame Retardants – European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)
重金屬和阻燃劑 - 有關歐盟委員會針對電子產品的指令(電子電氣禁用某些有害物質指令), 2011/65/EU**

| | | | |
|---------------------|---|---|---|
| Test Method 測試方法 | Lead [Pb] / 鉛 | : | With reference to IEC 62321-5: 2013. (Analysis by ICP-OES). |
| | Cadmium [Cd] / 鎘 | : | 參照 IEC 62321-5: 2013. (ICP-OES 分析)。 |
| | Mercury [Hg] / 汞 | : | With reference to IEC 62321-4: 2013+AMD 1:2017 CSV. (Analysis by ICP-OES). |
| | Chromium (VI) [Cr(VI)] / 六價鉻 | : | 參照 IEC 62321-4: 2013+AMD 1:2017 CSV. (ICP-OES 分析)。 |
| | Polybrominated Biphenyls [PBBs] and Polybrominated Diphenyl Ethers [PBDEs] / 多溴聯苯和多溴聯苯醚 | : | With reference to IEC 62321-6: 2015 (Analysis by GC-MS). 參照 IEC 62321-6: 2015. (GC-MS 分析)。 |

| Compounds 化合物 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|--|------------|--------------|---------------------|
| | | 1 | |
| Lead [Pb] / 鉛 | mg/kg | N.D. | 2 |
| Cadmium [Cd] / 鎘 | mg/kg | N.D. | 2 |
| Mercury [Hg] / 汞 | mg/kg | N.D. | 2 |
| Chromium (VI) [Cr(VI)] / 六價鉻 | mg/kg | N.D. | 8 |
| Polybrominated Biphenyls [PBBs] / 多溴聯苯 | | | |
| Bromobiphenyls / 一溴聯苯 | mg/kg | N.D. | 5 |
| Dibromobiphenyls / 二溴聯苯 | mg/kg | N.D. | 5 |
| Tribromobiphenyls / 三溴聯苯 | mg/kg | N.D. | 5 |
| Tetrabromobiphenyls / 四溴聯苯 | mg/kg | N.D. | 5 |
| Pentabromobiphenyls / 五溴聯苯 | mg/kg | N.D. | 5 |
| Hexabromobiphenyls / 六溴聯苯 | mg/kg | N.D. | 5 |
| Heptabromobiphenyls / 七溴聯苯 | mg/kg | N.D. | 5 |
| Octabromobiphenyls / 八溴聯苯 | mg/kg | N.D. | 5 |
| Nonabromobiphenyls / 九溴聯苯 | mg/kg | N.D. | 5 |
| Decabromobiphenyl / 十溴聯苯 | mg/kg | N.D. | 5 |
| Sum of PBBs / 多溴聯苯總和 | mg/kg | N.D. | — |
| Bromodiphenyl ethers / 一溴聯苯醚 | mg/kg | N.D. | 5 |
| Dibromodiphenyl ethers / 二溴聯苯醚 | mg/kg | N.D. | 5 |
| Tribromodiphenyl ethers / 三溴聯苯醚 | mg/kg | N.D. | 5 |
| Tetrabromodiphenyl ethers / 四溴聯苯醚 | mg/kg | N.D. | 5 |
| Pentabromodiphenyl ethers / 五溴聯苯醚 | mg/kg | N.D. | 5 |
| Hexabromodiphenyl ethers / 六溴聯苯醚 | mg/kg | N.D. | 5 |
| Heptabromodiphenyl ethers / 七溴聯苯醚 | mg/kg | N.D. | 5 |
| Octabromodiphenyl ethers / 八溴聯苯醚 | mg/kg | N.D. | 5 |
| Nonabromodiphenyl ethers / 九溴聯苯醚 | mg/kg | N.D. | 5 |
| Decabromodiphenyl ether / 十溴聯苯醚 | mg/kg | N.D. | 5 |
| Sum of PBDEs / 多溴聯苯醚總和 | mg/kg | N.D. | — |

C/N / TC/JK



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TEST RESULT 測試結果

Phthalates

鄰苯二甲酸鹽

Test Method: With reference to IEC 62321-8: 2017. (Analysis by GC-MS).

測試方法: 參照 IEC 62321-8: 2017 (GC-MS 分析)。

| Test Item 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|---|------------|--------------|---------------------|
| | | 1 | |
| Di-butyl phthalate (DBP) 鄰苯二甲酸二丁酯 (DBP) | mg/kg | N.D. | 50 |
| Butyl benzyl phthalate (BBP) 鄰苯二甲酸丁基苄基酯 (BBP) | mg/kg | N.D. | 50 |
| Di-(ethylhexyl) phthalate (DEHP) 鄰苯二甲酸二(2-乙基己基)酯 (DEHP) | mg/kg | N.D. | 50 |
| Di-n-octyl phthalate (DNOP) 鄰苯二甲酸二正辛酯 (DNOP) | mg/kg | N.D. | 50 |
| Di-isodecyl phthalate (DIDP) 鄰苯二甲酸二異癸酯 (DIDP) | mg/kg | N.D. | 50 |
| Di-isononyl phthalate (DINP) 鄰苯二甲酸二異壬酯 (DINP) | mg/kg | N.D. | 50 |
| Di-n-hexyl phthalate (DNHP/DHEXP) 鄰苯二甲酸二己酯 (DNHP/DHEXP) | mg/kg | N.D. | 50 |
| Diisobutyl phthalate (DiBP) 鄰苯二甲酸二異丁酯 (DiBP) | mg/kg | N.D. | 50 |
| Dimethoxyethyl phthalate (DMEP) 鄰苯二甲酸二甲氧基乙酯 (DMEP) | mg/kg | N.D. | 50 |
| Di-n-pentyl Phthalate (DNPP) 鄰苯二甲酸二戊酯 (DNPP) | mg/kg | N.D. | 50 |
| Di-isoheptyl phthalate (DIHP) 鄰苯二甲酸二異己酯 (DIHP) | mg/kg | N.D. | 50 |
| Di-C7-11-branched alkylphthalates (DHNUP) 鄰苯二甲酸二(C17-11 支鏈與直鏈烷基酯 (DHNUP) | mg/kg | N.D. | 50 |

TEST RESULT 測試結果

Hexabromocyclododecane (HBCDD)

六溴環十二烷

Test Method: With reference to IEC 62321-6:2015. (Analysis by LC-MS).
測試方法: 參照 IEC 62321-6:2015 (LC-MS 分析)。

| Test Item 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|--|------------|--------------|---------------------|
| | | 1 | |
| Hexabromocyclododecane (HBCDD) 六溴環十二烷 | mg/kg | N.D. | 5 |

Halogen - Fluorine, Chlorine, Bromine and Iodine

鹵素 - 氟、氯、溴和碘

Test Method: With reference to EN14582:2016(E). (Analysis by Ion Chromatogram).
測試方法: 參照 EN14582:2016(E) (Ion Chromatogram 分析)。

| Compounds 化合物 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|-------------------|------------|--------------|---------------------|
| | | 1 | |
| Fluorine [F] / 氟 | mg/kg | N.D. | 50 |
| Chlorine [Cl] / 氯 | mg/kg | N.D. | 50 |
| Bromine [Br] / 溴 | mg/kg | N.D. | 50 |
| Iodine [I] / 碘 | mg/kg | N.D. | 50 |

Perfluorooctanoic acid (PFOA) and Perfluorooctane sulphonate (PFOS)

全氟辛酸和全氟辛烷磺酸

Test Method: With reference to DIN CEN/TS 15968:2010. (Analysis by LC-MS-MS).
測試方法: 參照 DIN CEN/TS 15968:2010. (LC-MS-MS 分析)。

| Test Parameter 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|---|------------|--------------|---------------------|
| | | 1 | |
| Perfluorooctanoic acid (PFOA) 全氟辛酸 | ppb | N.D. | 10 |
| Perfluorooctane sulphonate (PFOS) 全氟辛烷磺酸 | ppb | N.D. | 10 |



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TEST RESULT 測試結果

Dimethyl Fumarate

富馬酸二甲酯

Test Method: With reference to US EPA 3550C:2007. (Analysis by GC-MS).

測試方法: 參照 US EPA 3550C:2007 (GC-MS 分析)。

| Test Parameter 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|-----------------------------|------------|--------------|---------------------|
| | | 1 | |
| Dimethyl Fumarate 富馬酸二甲酯 | mg/kg | N.D. | 0.03 |

Organotin Compounds

有機錫

Test Method: Refer to ISO17353:2004 (Analysis by GC-MS).

測試方法: 參照 ISO17353:2004 (GC-MS 分析)。

| Test Parameter 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|-------------------------------------|------------|--------------|---------------------|
| | | 1 | |
| Tributyltin (TBT) 三丁基錫 | mg/kg | N.D. | 0.03 |
| Tripropyltin (TPT) 三苯基錫 | mg/kg | N.D. | 0.03 |
| Tributyltin Oxide (TBTO) 三丁基錫氧化物 | mg/kg | N.D. | 0.03 |
| Dibutyltin (DBT) 二丁基錫 | mg/kg | N.D. | 0.03 |
| Triphenyltin (TPhT) 氫氧化三苯基錫 | mg/kg | N.D. | 0.03 |
| Diocetyl tin (DOT) 二辛基錫 | mg/kg | N.D. | 0.03 |

TEST RESULT 測試結果

Short Chain Chlorinated Paraffins (SCCPs) (C10 – C13)

短鏈氯化石蠟

Test Method: With reference to US EPA 3550C:2007. (Analysis by NCI-GCMS).
測試方法: 參照 US EPA 3550C:2007 (NCI-GCMS 分析)。

| Test Parameter 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|--|------------|--------------|---------------------|
| | | 1 | |
| Short Chain Chlorinated Paraffins (SCCPs) (C10 – C13) 短鏈氯化石蠟 | mg/kg | N.D. | 100 |

Polyvinyl Chloride (PVC) Identification

聚氯乙烯 (PVC) 鑑定

Test Method: With reference to Beilstein and FT-IR.
測試方法: 參照貝爾坦斯試驗法及傅裡葉變換紅外光譜法(FT-IR)。

| Test Parameter 測試項目 | Tested item 測試部件 |
|------------------------------|------------------------------|
| | 1 |
| PVC Identification 聚氯乙烯鑑定 | PVC is not found 未偵測到聚氯乙烯 |

Tetrabromobisphenol A (TBBPA)

四溴雙酚 A

Test Method: With reference to US EPA 3550C:2007. (Analysis by LC-MS).
測試方法: 參照 US EPA 3550C:2007 (LC-MS 分析)。

| Test Parameter 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|---|------------|--------------|---------------------|
| | | 1 | |
| Tetrabromobisphenol A (TBBPA) 四溴雙酚 A | mg/kg | N.D. | 5 |



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TEST RESULT 測試結果

Polychlorinated Biphenyls (PCBs)

多氯聯苯

Test Method: With reference to US EPA 3550C:2007. (Analysis by GC-MS).

測試方法: 參照 US EPA 3550C:2007 (GC-MS 分析)。

| Test Item 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|--|------------|--------------|---------------------|
| | | 1 | |
| Polychlorinated Biphenyls (PCBs) 多氯聯苯 | mg/kg | N.D. | 0.5 |

Polychlorinated Naphthalene (PCNs)

多氯奈

Test Method: With reference to US EPA 3550C:2007. (Analysis by GC-MS).

測試方法: 參照 US EPA 3550C:2007 (GC-MS 分析)。

| Test Item 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|--|------------|--------------|---------------------|
| | | 1 | |
| Polychlorinated Naphthalene (PCNs) 多氯奈 | mg/kg | N.D. | 5 |

Polychlorinated Terphenyls (PCTs)

多氯三聯苯

Test Method: With reference to US EPA 3550C:2007. (Analysis by GC-MS).

測試方法: 參照 US EPA 3550C:2007 (GC-MS 分析)。

| Test Item 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|--|------------|--------------|---------------------|
| | | 1 | |
| Polychlorinated Terphenyls Contents (PCTs) 多氯三聯苯 | mg/kg | N.D. | 0.5 |



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TEST RESULT 測試結果

Total Arsenic (As)

總砷

Test Method: With reference to U.S. EPA 3052:1996 (Analysed by ICP-OES.)

測試方法: 參照 U.S. EPA 3052:1996 (ICP-OES 分析)。

| Test Item 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|--------------------------|------------|--------------|---------------------|
| | | 1 | |
| Total Arsenic (As) 總砷 | mg/kg | N.D. | 2 |

Total Beryllium (Be)

總鉍

Test Method: With reference to U.S. EPA 3052:1996 (Analysed by ICP-OES.)

測試方法: 參照 U.S. EPA 3052:1996 (ICP-OES 分析)。

| Test Item 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|----------------------------|------------|--------------|---------------------|
| | | 1 | |
| Total Beryllium (Be) 總鉍 | mg/kg | N.D. | 2 |

Total Antimony (Sb)

總銻

Test Method: With reference to U.S. EPA 3052:1996 (Analysed by ICP-OES.)

測試方法: 參照 U.S. EPA 3052:1996 (ICP-OES 分析)。

| Test Item 測試項目 | Unit 單位 | Result 結果 | MDL 測試方法 偵測極限 |
|---------------------------|------------|--------------|---------------------|
| | | 1 | |
| Total Antimony (Sb) 總銻 | mg/kg | N.D. | 2 |



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Remark 備註:

1. The result only relates to the tested item. The report shall not be reproduced except full without the written approval of the testing laboratory. Parameters which are not covered by the lab's testing scope are subcontracted to laboratories with government approval. The accreditation relates to competences given in the accreditation certificate.
測試結果僅代表經測試部件。本報告未經測試實驗室認可不得複製。未在本實驗室測試範疇之測試均委外至經官方核可之實驗室。委外實驗室之能力經認證許可。
2. Samples test were conducted as per applicant's request.
樣品測試進行為依照申請人的要求。

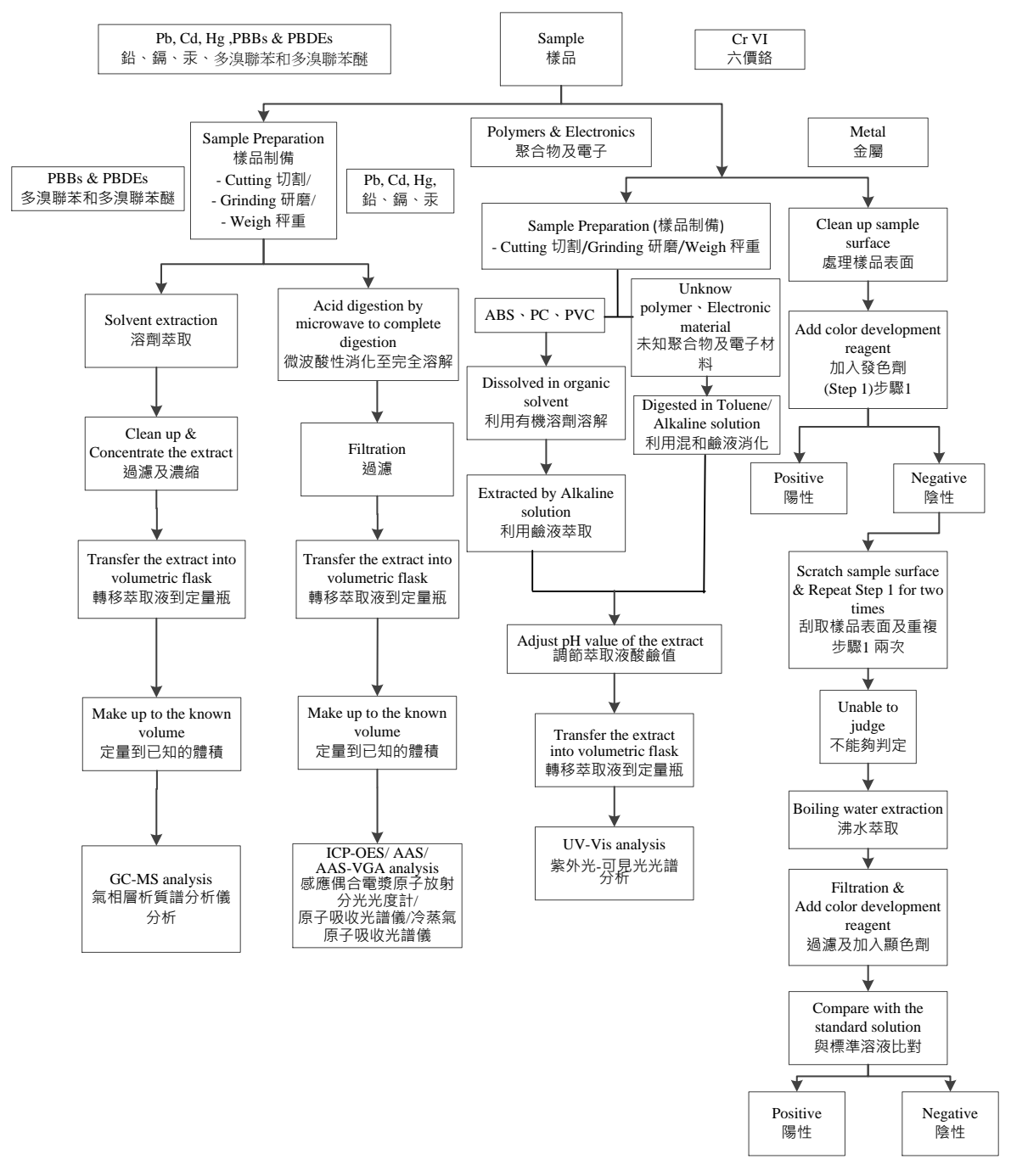


APPENDIX(附錄)

Test Flowchart of Heavy Metals and Flame Retardants

重金屬和阻燃劑的測試流程圖

- 1. 測試人員：郭蕙瑄, 梁維翰 / Name of the person who made measurement: Ariel Kuo, Ben Liang
- 2. 測試負責人：林晏瑜, 黃秉宏 / Name of the person in charge of measurement: Vico Lin, Jerry Huang

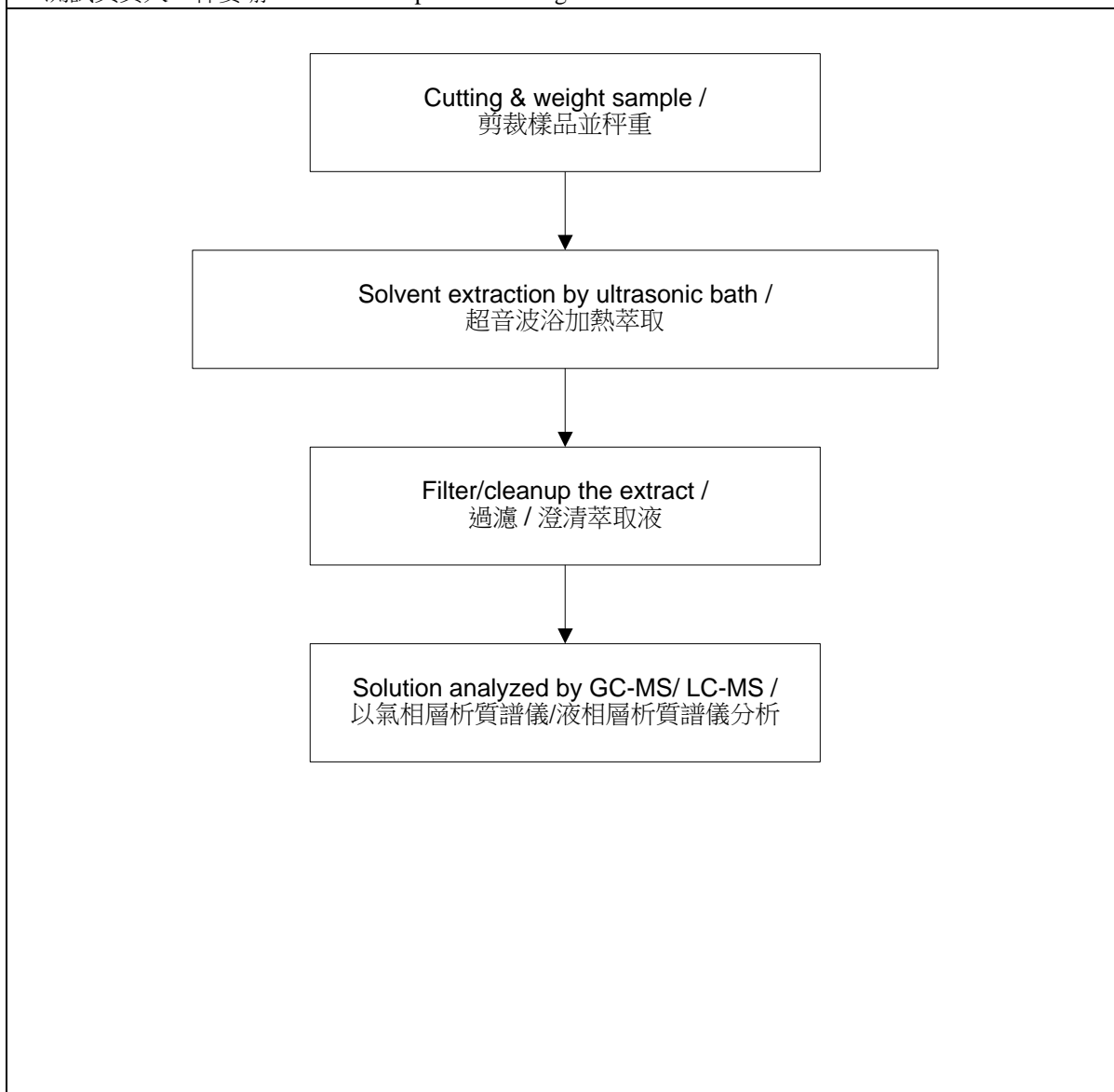


APPENDIX(附錄)

Determinations of Phthalate, HBCDD, Perfluorooctanoic acid (PFOA), Perfluorooctane sulphonate (PFOS), Dimethyl Fumarate

鄰苯二甲酸鹽, 六溴環十二烷, 全氟辛酸與全氟辛烷磺酸, 和富馬酸二甲酯的測試流程圖

1. 測試人員：何玉賜 / Name of the person who made measurement: Harrison Ho
2. 測試負責人：林晏瑜 / Name of the person in charge of measurement: Vico Lin





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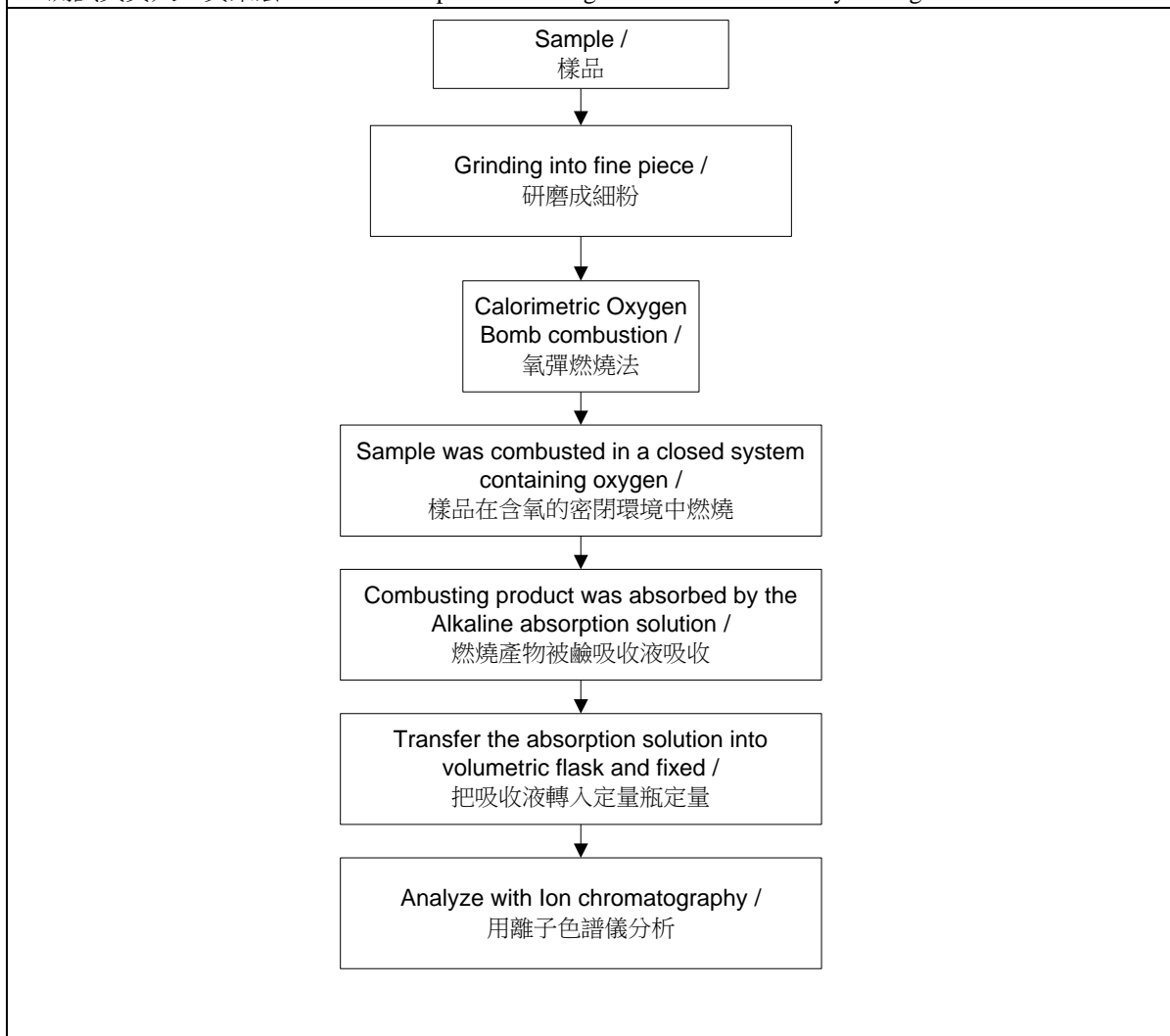
APPENDIX(附錄)

Test Flowchart of Halogenated Compounds: F, Cl, Br, I

鹵素: 氟, 氯, 溴, 碘的測試流程圖

1. 測試人員: 謝明桓 / Name of the person who made measurement: Henry Hsieh

2. 測試負責人: 黃秉宏 / Name of the person in charge of measurement: Jerry Huang



APPENDIX(附錄)

Determinations of Organotin

有機錫的測試流程圖

1. 測試人員：郭蕙瑄 / Name of the person who made measurement: Ariel Kuo
2. 測試負責人：林晏瑜 / Name of the person in charge of measurement: Vico Lin

Adding organic solvent and extracted
by Ultrasonic bath /
樣品加入溶劑，在超音波水浴下震盪

Add derivatizing agent and shaken by shaker /
加入衍生劑進行衍生，並以振盪器協助反應

Withdraw up layer and filtered to via by filter /
取上層澄清液，接著進行過濾至vial至瓶中

Solution analyzed by GC-MS/ UV-VIS /
萃取液利用 GC-MS/ UV-VIS 進行分析



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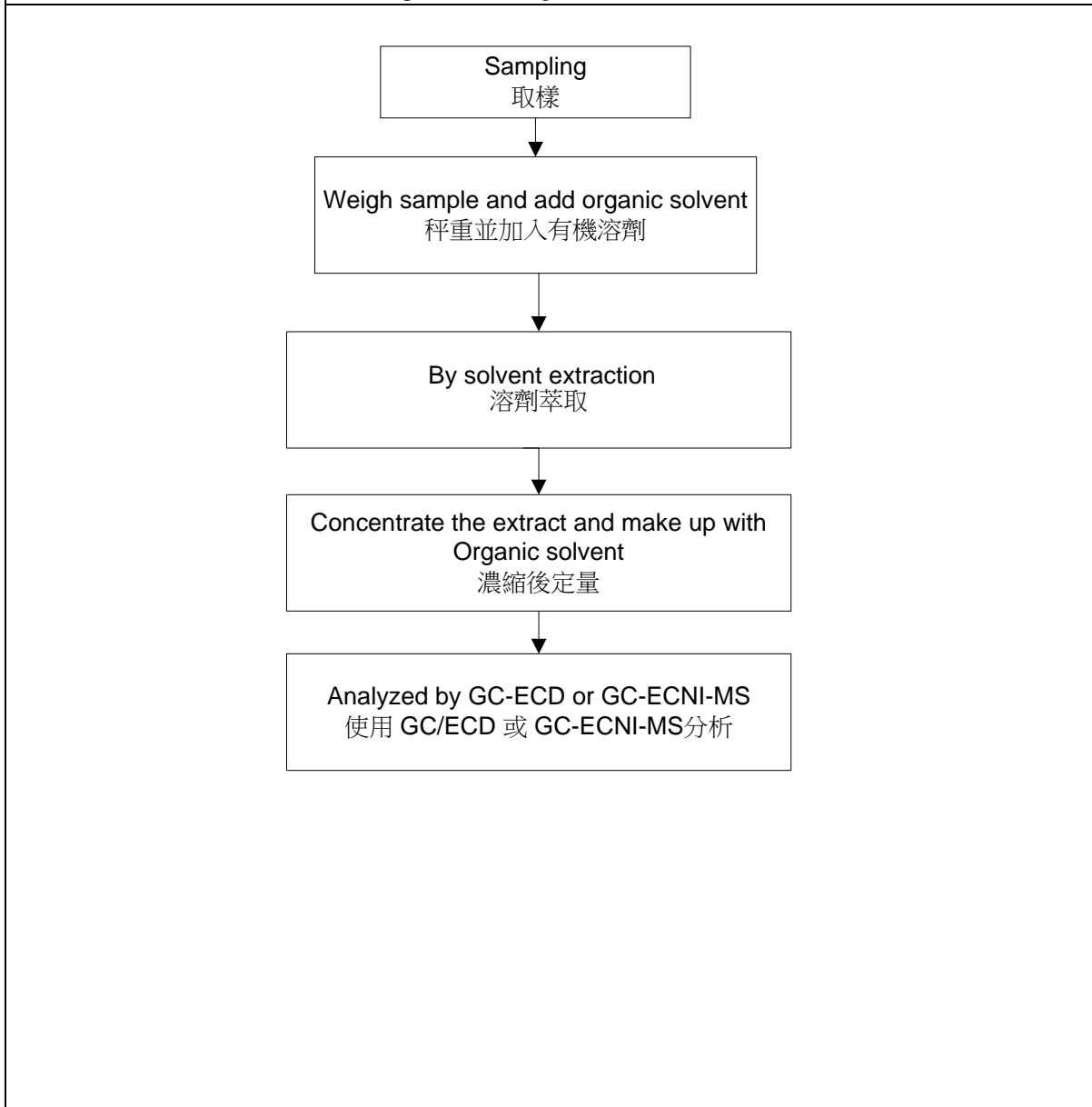
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APPENDIX(附錄)

Test Flowchart of Short Chain Chlorinated Paraffins (SCCPs)

短鏈氯化石蠟的測試流程圖

1. 測試人員：郭蕙瑄 / Name of the person who made measurement: Ariel Kuo
2. 測試負責人：林晏瑜 / Name of the person in charge of measurement: Vico Lin





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APPENDIX(附錄)

Test Flowchart of Polyvinyl Chloride (PVC) Identification

聚氯乙烯 (PVC) 鑑定的測試流程圖

1. 測試人員：梁維翰 / Name of the person who made measurement: Ben Liang
2. 測試負責人：黃秉宏 / Name of the person in charge of measurement: Jerry Huang

Dissolve the sample with organic solvent, and placed in Ultrasonic bath at room temperature for 1 hr. /
以有機溶劑溶解，並以超音波在室溫下震盪一小時

Add ACN and stand for 30 minutes for precipitation. /
加入乙腈，並靜置 30 分鐘做為析出流程

Filter the precipitate then stand at room temperature until it is dried. /
利用濾紙過濾，靜置在室溫下使其乾燥

Using FTIR to identify. /
利用 FTIR 進行鑑定

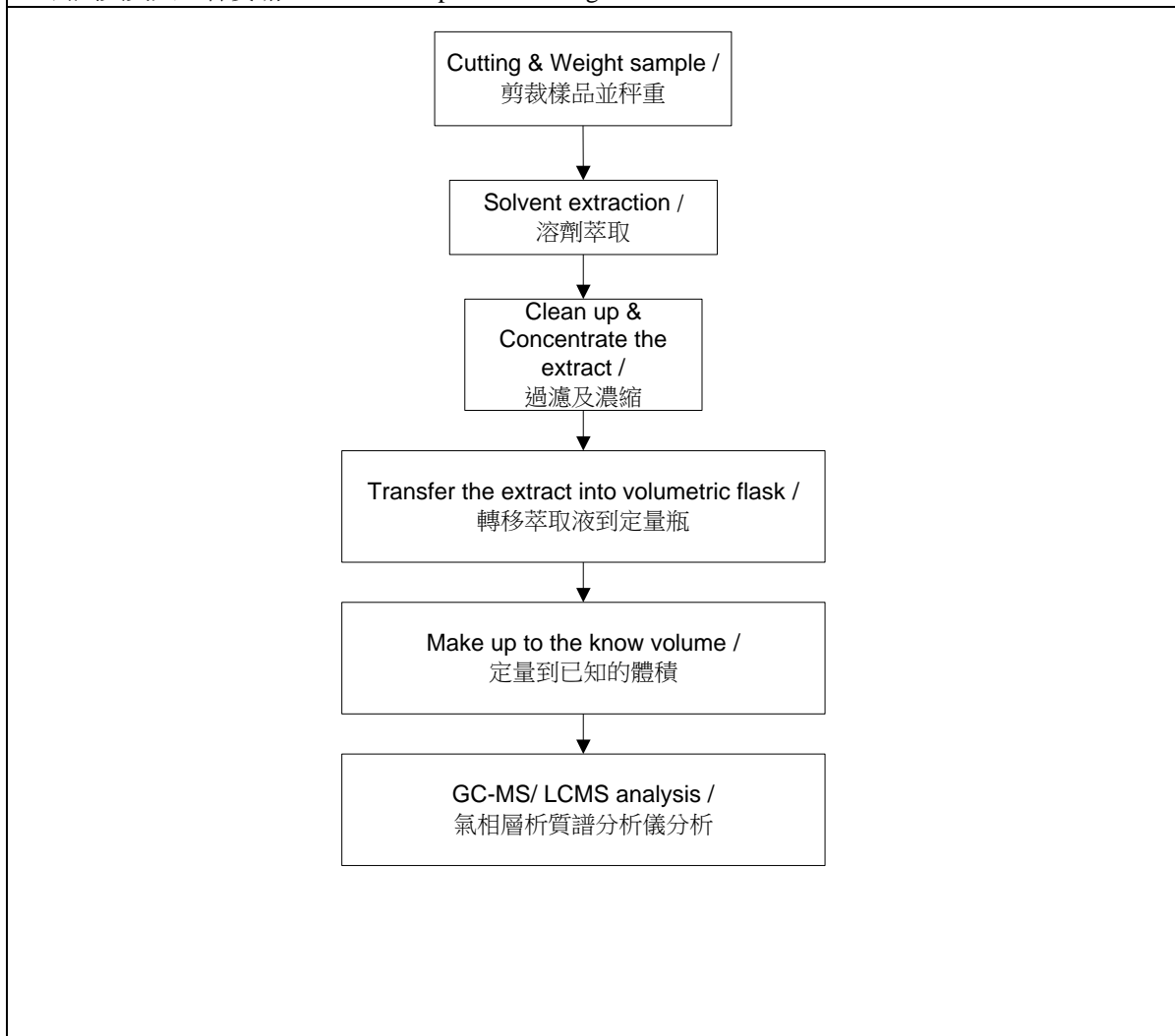
APPENDIX(附錄)

Test Flowchart of TBBPA, PCBs, PCNs, PCTs

四溴雙酚 A, 多氯聯苯, 多氯奈和多氯三聯苯的測試流程圖

1. 測試人員：郭蕙瑄 / Name of the person who made measurement: Ariel Kuo

2. 測試負責人：林晏瑜 / Name of the person in charge of measurement: Vico Lin





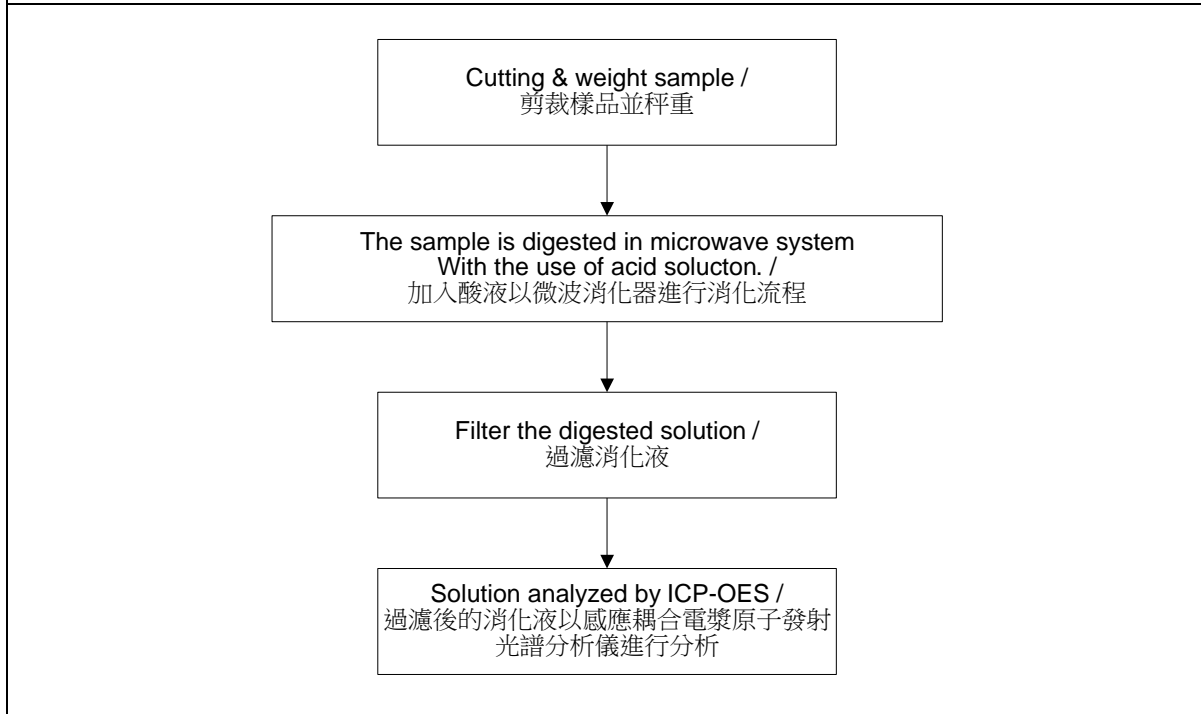
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APPENDIX(附錄)

Test Flowchart of Total Arsenic (As), Total Beryllium (Be) and Total Antimony (Sb) 總砷, 總鉍與總銻的測試流程圖

1. 測試人員：梁維翰 / Name of the person who made measurement: Ben Liang
2. 測試負責人：黃秉宏 / Name of the person in charge of measurement: Jerry Huang



- End 結束 -