



## 檢測報告 Test Report

報告編號 A221049538610100101E  
Report No. A221049538610100101E

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報告抬頭公司名稱 高柏科技股份有限公司  
Company Name T-GLOBAL TECHNOLOGY CO., LTD  
shown on Report  
地 址 桃園市桃園區大仁路 50 巷 33 號  
Address NO. 33, LN. 50, DAREN RD., TAOYUAN DIST., TAOYUAN CITY 330, TAIWAN

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                 | 相變化材料                          |
| Sample Name          | Thermal Phase Change Materials |
| 樣品型號                 | TG-V833P/TG-V833/TG-V838       |
| Part No.             | TG-V833P/TG-V833/TG-V838       |
| 樣品顏色                 | Gray                           |
| Color                | Gray                           |
| 樣品接收日期               | 2021.11.09                     |
| Sample Received Date | Nov. 9, 2021                   |
| 樣品檢測日期               | 2021.11.25- 2021.12.01         |
| Testing Period       | Nov. 25, 2021 to Dec. 1, 2021  |

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), 氟(F), 氯(Cl), 溴(Br), 碘(I)進行進行測試。

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), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I) 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

徐銘瑞

審 核  
Reviewed by

黃文昕

批 准  
Approved by

馮智聰

日 期  
Date

2021.12.14

實驗室經理 Laboratory Manager

No. R392331068

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

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檢測依據 Test Method

| 測試項目<br>Tested Item(s)                          | 測試方法<br>Test Method                        | 測試儀器<br>Measured<br>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<br>Chromium(Cr(VI))              | IEC 62321-7-2:2017                         | UV-Vis                           |
| 多溴聯苯 Polybrominated<br>Biphenyls(PBBs)          | IEC 62321-6:2015                           | GC-MS                            |
| 多溴二苯醚 Polybrominated Diphenyl<br>Ethers (PBDEs) | IEC 62321-6:2015                           | GC-MS                            |
| 鄰苯二甲酸酯 Phthalates                               | IEC 62321-8:2017                           | GC-MS                            |
| 氟 Fluorine (F)                                  | 參考 EN 14582:2016<br>Refer to EN 14582:2016 | IC                               |
| 氯 Chlorine (Cl)                                 | 參考 EN 14582:2016<br>Refer to EN 14582:2016 | IC                               |
| 溴 Bromine (Br)                                  | 參考 EN 14582:2016<br>Refer to EN 14582:2016 | IC                               |
| 碘 Iodine (I)                                    | 參考 EN 14582:2016<br>Refer to EN 14582:2016 | IC                               |

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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 |
|------------------------------------|-----------|-----------|
| 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 |
|---------------------------------------|-----------|-----------|
| 多溴聯苯 Polybrominated Biphenyls(PBBs) * |           |           |
| 一溴聯苯 Monobromodiphenyl                | 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 |
|-----------------------------------------------|-----------|-----------|
| 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 Dibromobiphenyl ether                   | N.D.      | 5 mg/kg   |
| 三溴二苯醚 Tribromobiphenyl ether                  | N.D.      | 5 mg/kg   |
| 四溴二苯醚 Tetrabromobiphenyl ether                | N.D.      | 5 mg/kg   |
| 五溴二苯醚 Pentabromobiphenyl ether                | N.D.      | 5 mg/kg   |
| 六溴二苯醚 Hexabromobiphenyl ether                 | N.D.      | 5 mg/kg   |
| 七溴二苯醚 Heptabromobiphenyl ether                | N.D.      | 5 mg/kg   |
| 八溴二苯醚 Octabromobiphenyl ether                 | N.D.      | 5 mg/kg   |
| 九溴二苯醚 Nonabromobiphenyl ether                 | N.D.      | 5 mg/kg   |
| 十溴二苯醚 Decabromobiphenyl 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 |
|---------------------------------------------------------------------------|-----------|-----------|
| 鄰苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP) *                                |           |           |
| 鄰苯二甲酸二正丁酯(DBP)<br>Dibutyl phthalate(DBP) CAS#:84-74-2                     | N.D.      | 50 mg/kg  |
| 鄰苯二甲酸丁基苄酯(BBP)<br>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)<br>Di-2-ethylhexyl phthalate(DEHP)<br>CAS#:117-81-7 | N.D.      | 50 mg/kg  |
| 鄰苯二甲酸二異丁酯(DIBP)<br>Diisobutyl phthalate(DIBP) CAS#:84-69-5                | N.D.      | 50 mg/kg  |

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

樣品/部位描述  
Sample/Part Description

灰色薄片(不含離型膜)  
Gray thin plate (excluding the release film)

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備註: 對於檢測鉛, 鎘, 汞之樣品已完全溶解。

-N.D. = 未檢出 (小於方法檢出限)

-mg/kg = ppm = 百萬分之一

-\*=此項目的測試數據引自於報告 A2210466370101001E

-根據客戶聲明, 本報告中樣品和報告 A2210495386101001E 中的樣品為同材質, 本報告中樣品的測試結果引自於報告 A2210495386101001E。

**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

-\*=The test result(s) is/are presented in reference to the result(s) that reported in A2210466370101001E .

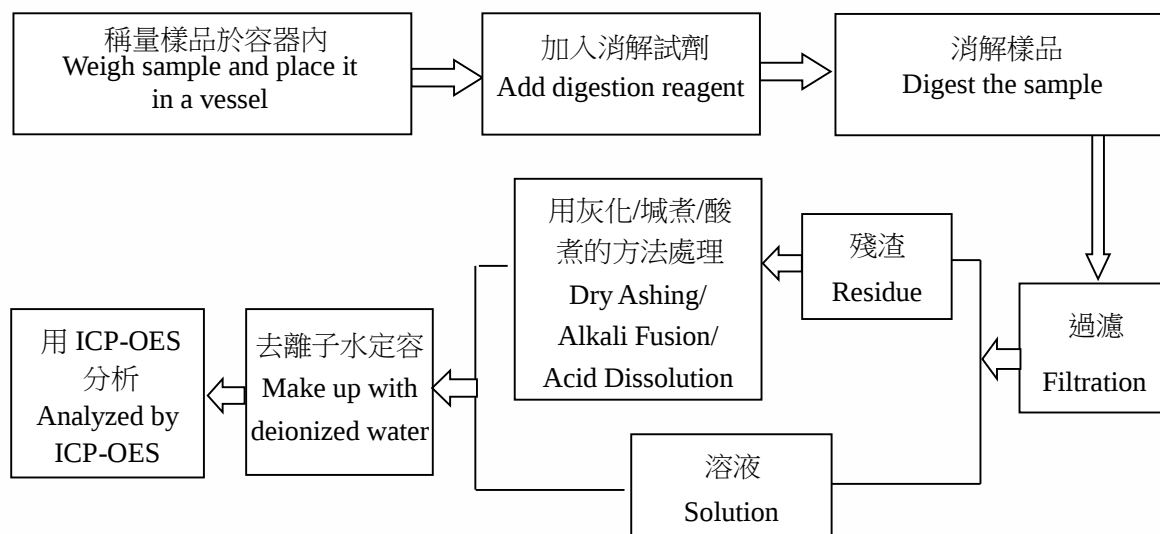
-According to the client's statement, the material of sample in this report is the same as the sample in report No. A2210495386101001E , so the test result(s) is(are) presented in reference to that one.

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.**

## 檢測流程 Test Process

### 1. 鉛 Lead(Pb), 鎘 Cadmium(Cd)

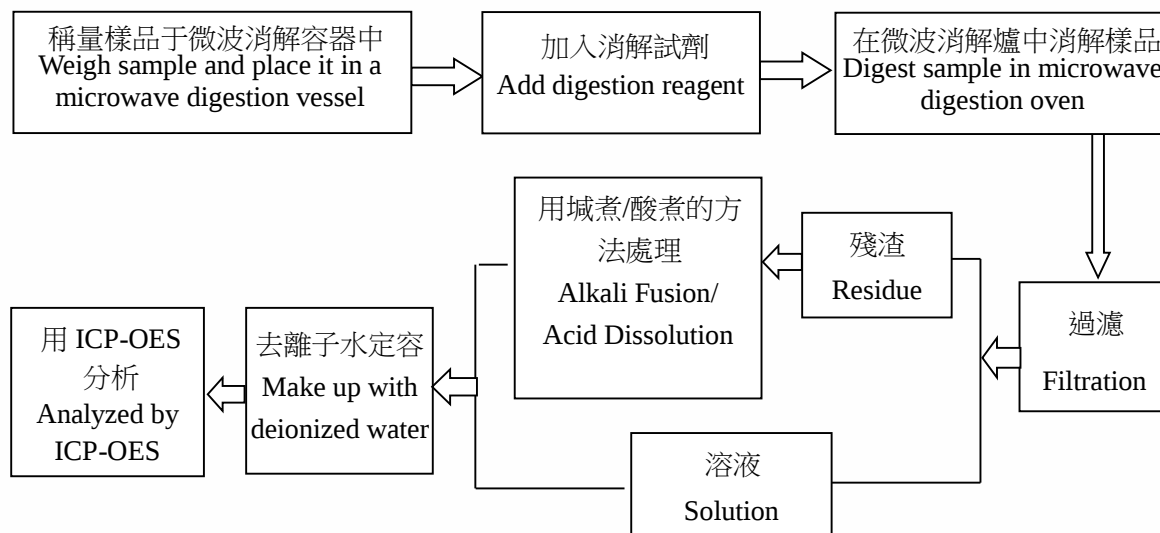


# 檢測報告 Test Report

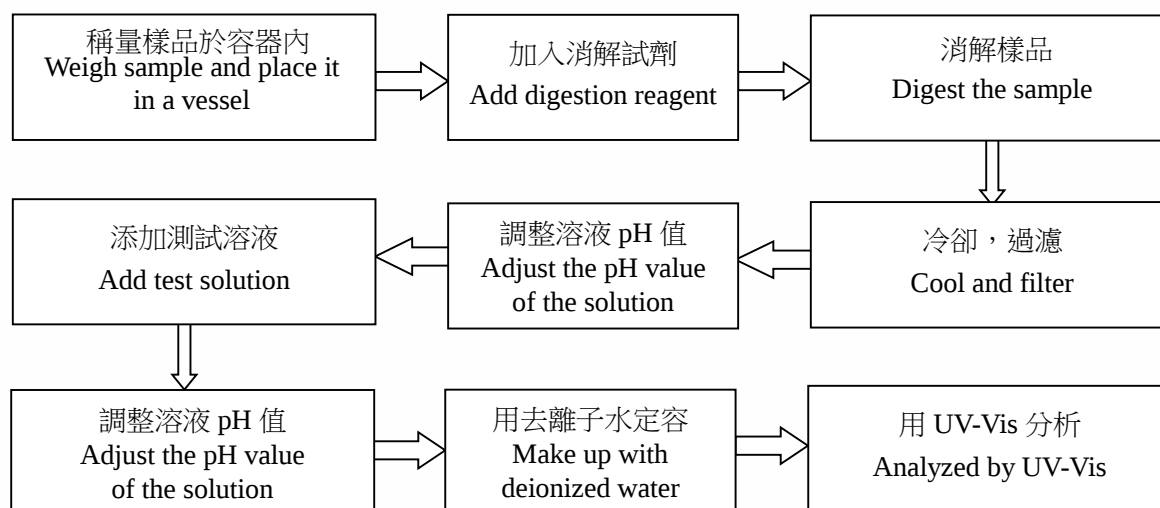
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## 2. 汞 Mercury(Hg)



## 3. 六價鉻 Hexavalent Chromium(Cr(VI))

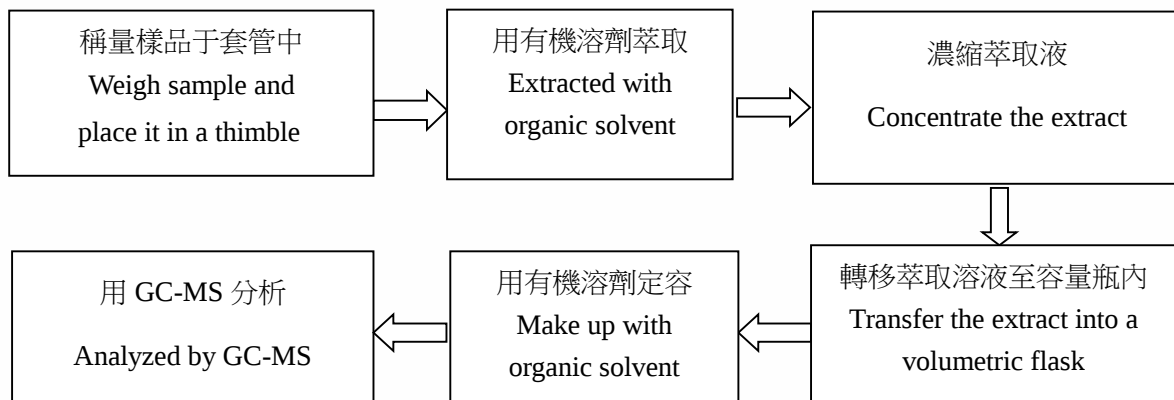


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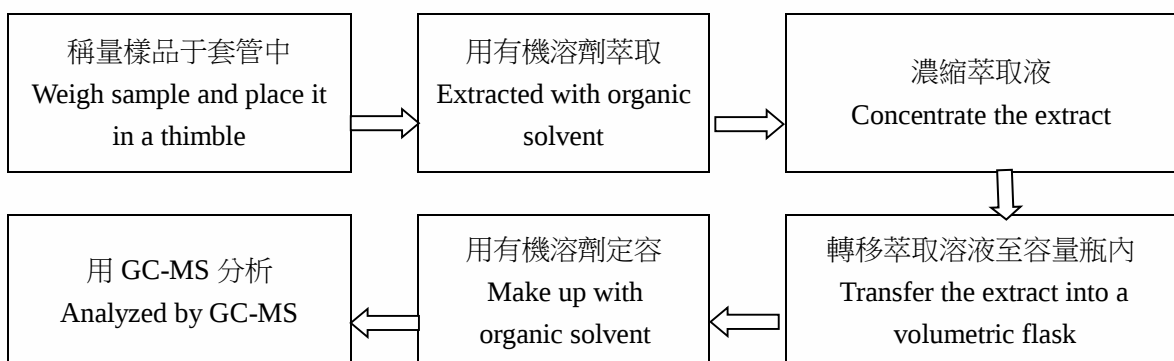
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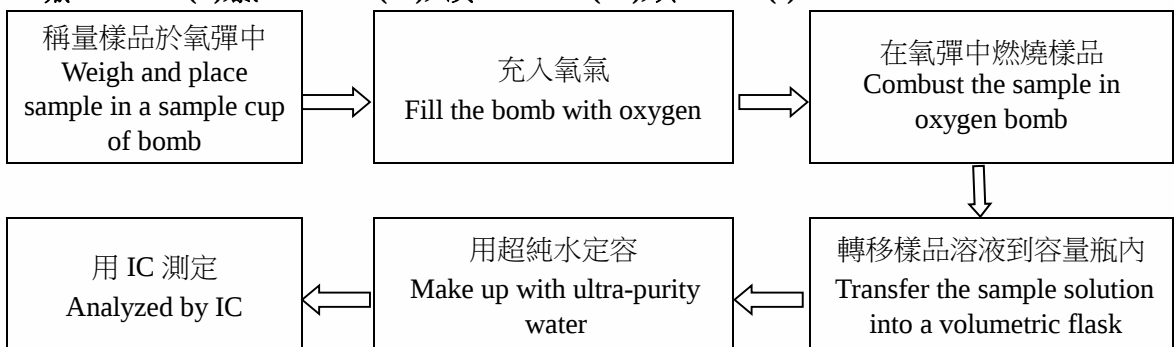
## 4. 多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs), 多溴聯苯 Polybrominated Biphenyls (PBBs)



## 5. 鄰苯二甲酸酯 Phthalates



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



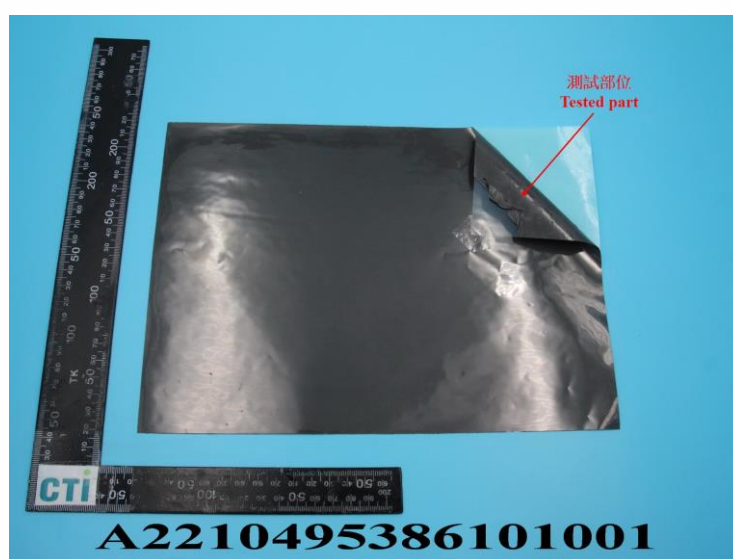
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## 樣品圖片

### 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 invalidated without approval 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；  
Company Name and Address shown on Report, the sample(s) and sample information was/were provided by the client 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;
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\*\*\* End of Report \*\*\*