

Report No. 報告號碼: 48281811b19 001

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Client 客戶: ISOLA GROUP

Test item(s) 測試樣品: Prepreg

Identification/Model No(s): Astra MT77

樣品描述/規格:

Sample obtaining method: Sending by customer

樣品獲取方式:

Condition at delivery: Test item complete and undamaged.

樣品接收狀態:

Sample receiving date: 2025-09-22

收樣日期:

Testing period: 2025-09-22 – 2025-10-13

測試週期:

Place of testing: Chemical laboratory Hong Kong

測試地點:

**Test specification 測試要求:**

Testing according to customer's specification for the following parameters:

Halogen/鹵素 (Fluorine/氟, Chlorine/氯, Bromine/溴, Iodine/碘), Perfluorooctane Sulfonate (PFOS)/全氟辛烷磺酸, Perfluorooctanoic Acid (PFOA)/全氟辛酸, Bisphenol-A (BPA)/雙酚-A, Arsenic (As)/砷, Antimony (Sb)/銻, Beryllium (Be)/鈹, Nickel (Ni)/鎳, Tin (Sn)/錫, Phosphorus (P)/磷, Organotin compounds/有機錫化合物, Polyvinyl chloride (PVC)/聚氯乙烯, Total Volatile organic compounds (TVOC)/總揮發性有機化合物, Bis( $\alpha,\alpha$ -dimethylbenzyl) peroxide (DCP)/過氧化二異丙苯, Phthalates/鄰苯二甲酸酯 (DnHP, DMEP, DnPP)

**Test result 測試結果:**

Refer to result page  
參照測試報告

For and on behalf of  
TÜV Rheinland Hong Kong Ltd.



2025-10-16  
Date 日期

Amenda Yung / Senior CS Manager  
Name/Position 姓名/職位

**Report Authenticity Verification, please email: [softlines@twn.tuv.com](mailto:softlines@twn.tuv.com).**

**報告真實性確認, 如需驗證, 請電郵至 [softlines@twn.tuv.com](mailto:softlines@twn.tuv.com)。**

Sample information is provided by customer. Test result is drawn according to the kind and extent of tests performed.

This test report relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

"Decision Rule" document announced in our website (<https://www.tuv.com/landingpage/en/qm-gcn/>) describes the statement of conformity and its rule of enforcement for test results are applicable throughout this test report.

樣品信息由客戶提供。測試結果根據所做測試的種類和範圍而得出。本測試報告僅對來樣負責。未經本測試中心許可, 測試報告不得部分複製。

不能根據此報告在上述產品或類似產品上使用任何安全標誌。本測試報告中, 描述符合性聲明所應用的判定規則發佈在我司官網

<https://www.tuv.com/landingpage/en/qm-gcn/>。



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Page 2 of 10**Tested Material list/測試材料清單**

Item: Astra MT77

| Material No./<br>材料編號 | Material/材質             | Color/顏色 | Location/位置  |
|-----------------------|-------------------------|----------|--------------|
| 1                     | Composite material/複合材料 | Flesh/肉色 | TCL250922-19 |

**Test Sample/測試樣品**

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## Test Result 測試結果

|                                                                        |                                                                                                                                              |              |       | Mat.1                                                                                                 |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------|-------------------------------------------------------------------------------------------------------|
| Test Item/測試項目                                                         | Test Method/<br>測試方法                                                                                                                         | Unit /<br>單位 | MDL   | Result/<br>結果                                                                                         |
| Halogen / 鹵素                                                           |                                                                                                                                              |              |       |                                                                                                       |
| Fluorine (F) / 氟                                                       | With ref. to<br>EN 14582:2016, IC/<br>參考 EN 14582:2016,<br>離子層析儀                                                                             | mg/kg        | 50    | n.d.                                                                                                  |
| Chlorine (Cl) / 氯                                                      |                                                                                                                                              | mg/kg        | 50    | n.d.                                                                                                  |
| Bromine (Br) / 溴                                                       |                                                                                                                                              | mg/kg        | 50    | 85987                                                                                                 |
| Iodine (I) / 碘                                                         |                                                                                                                                              | mg/kg        | 50    | n.d.                                                                                                  |
| Perfluorooctane Sulfonate (PFOS)<br>and its salts/全氟辛烷磺酸及其鹽類*          | With ref. to EN 17681-<br>1:2025, CI-GCMS / GC-<br>MSMS and LC-MSMS /<br>參考 EN 17681-1:2025,<br>化學離子化氣相色譜-質<br>譜儀 /氣相層析串聯質譜<br>儀 /液相層析/質譜儀分析 | mg/kg        | 0.01  | n.d.                                                                                                  |
| Perfluorooctanoic Acid (PFOA) and<br>its salts/全氟辛酸及其鹽類**              |                                                                                                                                              | mg/kg        | 0.01  | n.d.                                                                                                  |
| Bisphenol-A (BPA)/雙酚-A                                                 | Organic solvent<br>extraction, LC-MS/MS/<br>有機溶劑萃取,液相層析<br>串聯質譜儀                                                                             | mg/kg        | 0.1   | 0.3                                                                                                   |
| Arsenic (As)/砷                                                         | With ref. to<br>US EPA 3052:1996,<br>ICP-OES/參考 US EPA<br>3052: 1996, 感應耦合電<br>漿發射光譜儀                                                        | mg/kg        | 2     | n.d.                                                                                                  |
| Antimony (Sb)/銻                                                        |                                                                                                                                              | mg/kg        | 2     | n.d.                                                                                                  |
| Beryllium (Be)/鈹                                                       |                                                                                                                                              | mg/kg        | 2     | n.d.                                                                                                  |
| Nickel (Ni)/鎳                                                          |                                                                                                                                              | mg/kg        | 2     | n.d.                                                                                                  |
| Tin (Sn)/錫                                                             |                                                                                                                                              | mg/kg        | 2     | n.d.                                                                                                  |
| Phosphorus (P)/磷                                                       |                                                                                                                                              | mg/kg        | 2     | 116                                                                                                   |
| Organotin Compounds/有機錫化合物                                             |                                                                                                                                              |              |       |                                                                                                       |
| Tributyltin (TBT)/三丁基錫化合物                                              | With ref. to<br>ISO 17353:2004, GC-<br>MS /參考 ISO 17353:<br>2004, 氣相層析儀-質譜<br>儀                                                              | mg/kg        | 0.005 | n.d.                                                                                                  |
| Triphenyltin (TPhT)/三苯基錫化合物                                            |                                                                                                                                              | mg/kg        | 0.005 | n.d.                                                                                                  |
| Dibutyltin (DBT)/二丁基錫化合物                                               |                                                                                                                                              | mg/kg        | 0.005 | n.d.                                                                                                  |
| Diocetyltn (DOT)/二辛基錫化合物                                               |                                                                                                                                              | mg/kg        | 0.005 | n.d.                                                                                                  |
| Bis(tributyltin)/ oxide (TBTO)/<br>三丁基氧化錫                              | The substance is tested<br>and calculated in terms<br>of TBT/ 由三丁基錫測試<br>結果計算得之                                                              | mg/kg        | 0.005 | n.d.                                                                                                  |
| Polyvinyl chloride (PVC)/聚氯乙烯                                          | FTIR /傅立葉轉換紅<br>外線光譜儀                                                                                                                        | --           | --    | Negative                                                                                              |
| Total Volatile organic compounds<br>(TVOC)/總揮發性有機化合物                   | Headspace linked GC-<br>MS; 90°C, 30 mins                                                                                                    | µg/g         | 1     | 2-Propen-1-ol :<br>1.761<br>2-Butanone: 6.710<br>acetic acid, ethyl<br>ester: 3.464<br>Toluene: 5.443 |
| Bis(α,α-dimethylbenzyl) peroxide<br>(DCP)/過氧化二異丙苯<br>(CAS no. 80-43-3) | Organic solvent<br>extraction, LC-MS/MS/<br>有機溶劑萃取,液相層析<br>串聯質譜儀                                                                             | %            | 0.01  | 0.4                                                                                                   |

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|                                                    |                                                                                   |              |     | Mat.1         |
|----------------------------------------------------|-----------------------------------------------------------------------------------|--------------|-----|---------------|
| Test Item/測試項目                                     | Test Method/<br>測試方法                                                              | Unit /<br>單位 | MDL | Result/<br>結果 |
| Di-n-hexyl phthalate (DnHP)/<br>鄰苯二甲酸二正己酯          | With ref. to<br>IEC 62321-8:2017,<br>GC-MS/<br>參考 IEC 62321-8: 2017,<br>氣相層析儀-質譜儀 | mg/kg        | 50  | n.d.          |
| Bis(2-methoxyethyl) phthalate<br>(DMEP)/鄰苯二甲酸二甲氧乙酯 |                                                                                   | mg/kg        | 50  | n.d.          |
| Di-n-pentyl phthalate (DnPP)/<br>鄰苯二甲酸二戊酯          |                                                                                   | mg/kg        | 50  | n.d.          |

**Notes/ 註釋:**

MDL = Method Detection Limit/方法偵測極限值

n.d. = Not Detected/未檢出 ; Less than MDL/小於 MDL

mg/kg = milligram per kilogram/ 毫克每公斤

µg/g = micrograms per gram/微克每克

% = Percentage/百分比

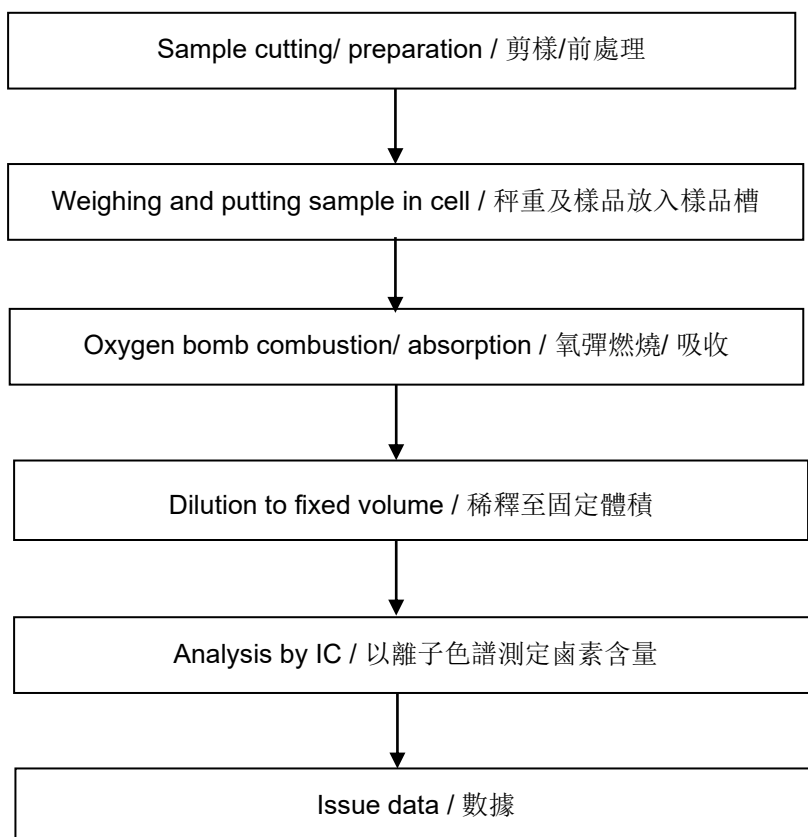
Negative/陰性 = Undetectable/未偵測到 ; Positive/陽性 = Detectable/偵測到

\* PFOS and its salts including: CAS no. 1763-23-1, 2795-39-3, 29457-72-5, 29081-56-9, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7, 91036-71-4, 4021-47-0.

\*\* PFOA and its salts including: CAS no. 335-67-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0, 3825-26-1, 17125-58-5.

**Testing procedure / 測試流程圖:**

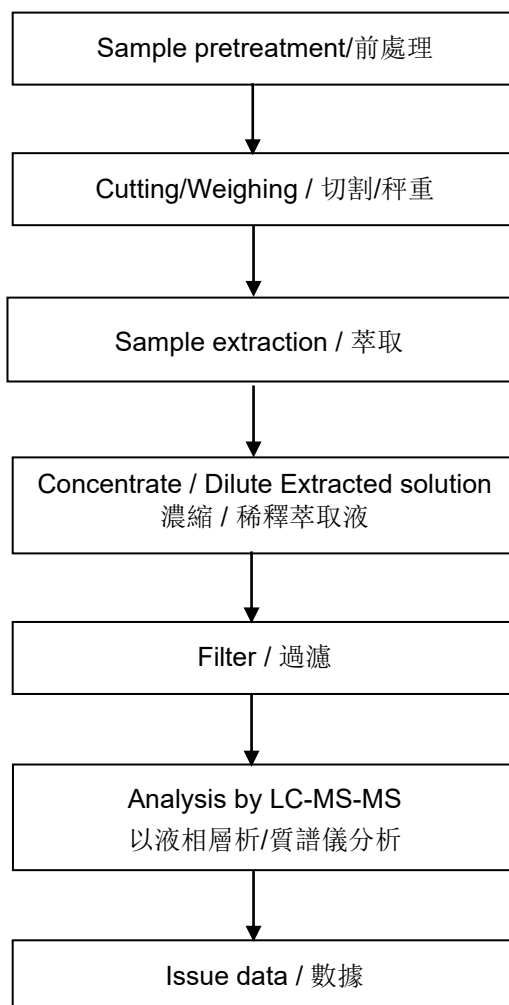
Halogen/鹵素



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第6頁 共10頁  
Page 6 of 10**Testing procedure / 測試流程圖:**

PFOS/全氟辛烷磺酸, PFOA/全氟辛酸; BPA/雙酚-A; DCP/過氧化二異丙苯

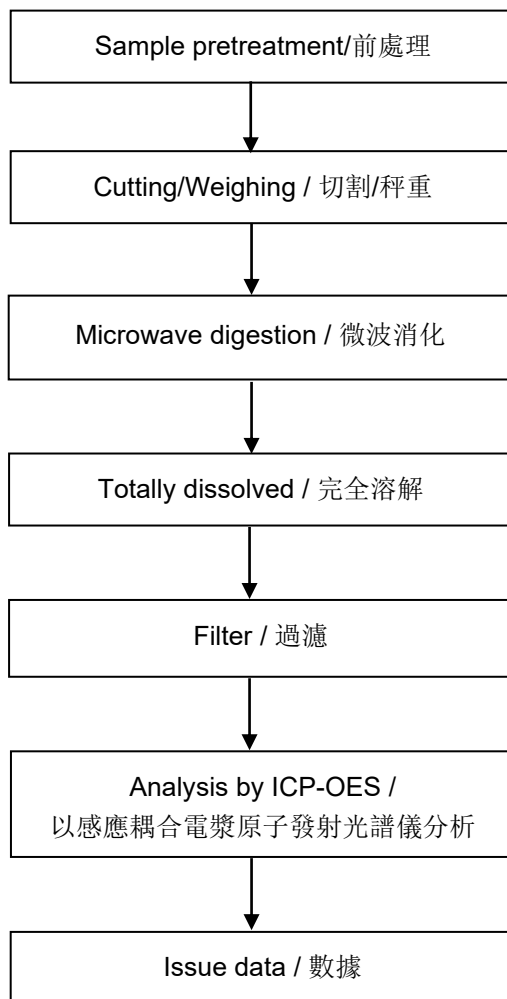


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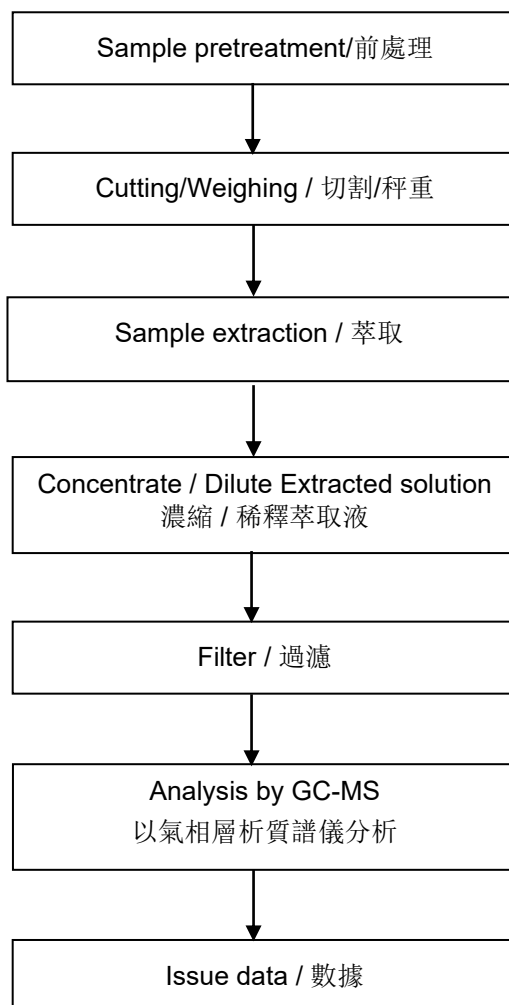
**Testing procedure / 測試流程圖 :**

As/砷, Sb/銻, Be/鈹, Ni/鎳, Sn/錫, P/磷



**Testing procedure / 測試流程圖:**

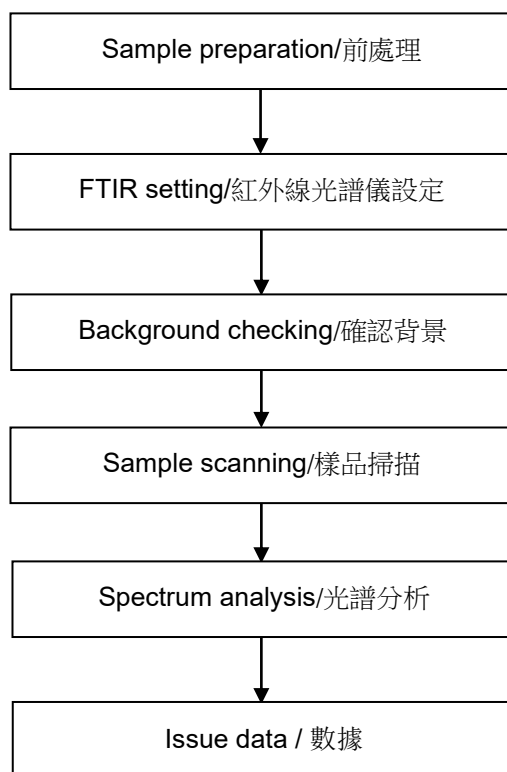
Organotin compounds/有機錫化合物, Phthalates/鄰苯二甲酸酯





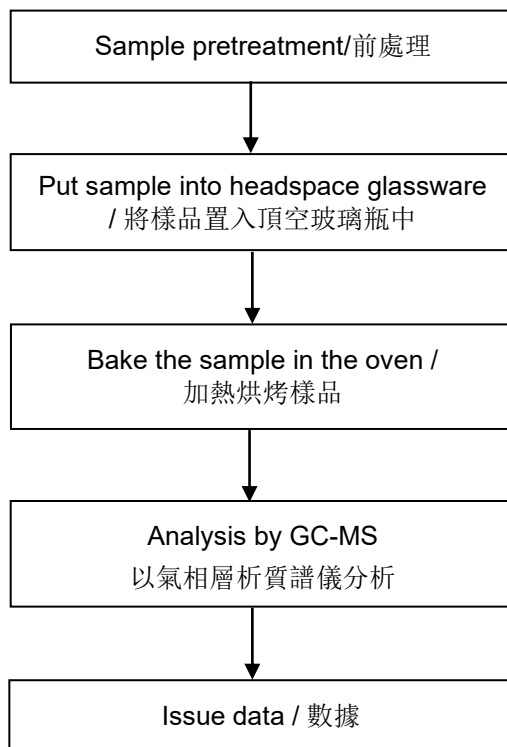
**Testing procedure / 測試流程圖:**

PVC/聚氯乙烯



**Testing procedure / 測試流程圖 :**

Total Volatile organic compounds (TVOC)/總揮發性有機化合物



--- End of Test-Report / 此報告結束----