Test Report
- Products

TÜVRheinland®
Precisely Right.

Report No. 報告號碼:	48309544b20 001
Client 客戶:	ISOLA GROUP
Test item(s) 測試樣品:	Laminate
Identification/Model No(s): 樣品描述/規格:	Astra MT77
Sample obtaining method: 樣品獲取方式:	Sending by customer
Condition at delivery: 樣品接收狀態:	Test item complete and undamaged.
Sample receiving date: 收樣日期:	2026-09-22
Testing period: 測試週期:	2026-09-22 – 2026-10-12
Place of testing: 測試地點:	Chemical laboratory Hong Kong

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(α,α-dimethylbenzyl) peroxide (DCP)/過氧化二異丙苯, Phthalates/鄰苯二甲酸酯 (DnHP,DMEP,DnPP) , 1,1'-(ethane-1,2-diyl)bis[pentabromobenzene] (DBDPE)/十溴二苯乙烷, Total organic fluorine/總有機氟

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.

2026-10-15
Date *日期*

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

TÜV RHEINLAND HONG KONG LTD.

Report Authenticity Verification, please email: softlines@twn.tuv.com.
報告真實性確認，如需驗證，請電郵至 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/。

Tested Material list/測試材料清單

Item: Astra MT77

Material No./ 材料編號	Material/材質	Color/顏色	Location/位置
1	Composite material/複合材料	Bronze/青銅色	TCL260922-20

Test Sample/測試樣品



Test Result 測試結果

				Mat.1
Test Item/測試項目	**Test Method/ 測試方法**	**Unit / 單位**	**MDL**	**Result/ 結果**
Halogen / 鹵素				
Fluorine (F) / 氟	With ref. to EN 14582:2016, IC/ 參考 EN 14582:2016, 離子層析儀	mg/kg	50	410
Chlorine (Cl) / 氯		mg/kg	50	n.d.
Bromine (Br) / 溴		mg/kg	50	29174
Iodine (I) / 碘		mg/kg	50	n.d.
Perfluorooctane Sulfonate (PFOS) and its salts/全氟辛烷磺酸及其鹽類*	Modified EN 17681-1:2025, CI-GCMS / GC-MSMS and LC-MSMS / 修改 EN 17681-1:2025, 化學離子化氣相色譜-質譜儀 /氣相層析串聯質譜儀 /液相層析/質譜儀分析	mg/kg	0.01	n.d.
Perfluorooctanoic Acid (PFOA) and its salts/全氟辛酸及其鹽類**		mg/kg	0.01	n.d.
Bisphenol-A (BPA)/雙酚-A	Organic solvent extraction, LC-MS/MS/ 有機溶劑萃取,液相層析串聯質譜儀	mg/kg	0.1	n.d.
Arsenic (As)/砷	With ref. to US EPA 3052:1996, ICP-OES/參考 US EPA 3052: 1996，感應耦合電漿發射光譜儀	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	55
Organotin Compounds/有機錫化合物				
Tributyltin (TBT)/三丁基錫化合物	With ref. to ISO 17353:2004, GC-MS /參考 ISO 17353: 2004，氣相層析儀-質譜儀	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.
Dioctyltin (DOT)/二辛基錫化合物		mg/kg	0.005	n.d.
Bis(tributyltin)/ oxide (TBTO)/ 三丁基氧化錫	The substance is tested and calculated in terms of TBT/ 由三丁基錫測試結果計算得之	mg/kg	0.005	n.d.
Polyvinyl chloride (PVC)/聚氯乙烯	FTIR /傅立葉轉換紅外線光譜儀	--	--	Negative
Total Volatile organic compounds (TVOC)/總揮發性有機化合物	Headspace linked GC-MS; 90°C, 30 mins	µg/g	1	n.d.
Bis(α,α-dimethylbenzyl) peroxide (DCP)/過氧化二異丙苯 (CAS no. 80-43-3)	Organic solvent extraction, LC-MS/MS/ 有機溶劑萃取,液相層析串聯質譜儀	%	0.01	n.d.

				Mat.1
Test Item/測試項目	**Test Method/ 測試方法**	**Unit / 單位**	**MDL**	**Result/ 結果**
Di-n-hexyl phthalate (DnHP)/ 鄰苯二甲酸二正己酯	With ref. to IEC 62321-8:2017, GC-MS/ 參考 IEC 62321-8: 2017, 氣相層析儀-質譜儀	mg/kg	50	n.d.
Bis(2-methoxyethyl) phthalate (DMEP)/鄰苯二甲酸二甲氧乙酯		mg/kg	50	n.d.
Di-n-pentyl phthalate (DnPP)/ 鄰苯二甲酸二戊酯		mg/kg	50	n.d.
1,1'-(ethane-1,2-diyl)bis[pentabromobenzene] (DBDPE)/十溴二苯乙烷	Organic solvent extraction, GC-MS/ 有機溶劑萃取, 氣相層析儀-質譜儀	mg/kg	100	1300
Total organic fluorine / 總有機氟	In house method in combination with EN 14582:2016 / IEC 62321-3-2:2020; IC/ 內部方法與 EN 14582: 2016 / IEC 62321-3-2:2020 結合, 離子層析儀	mg/kg	10	410

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

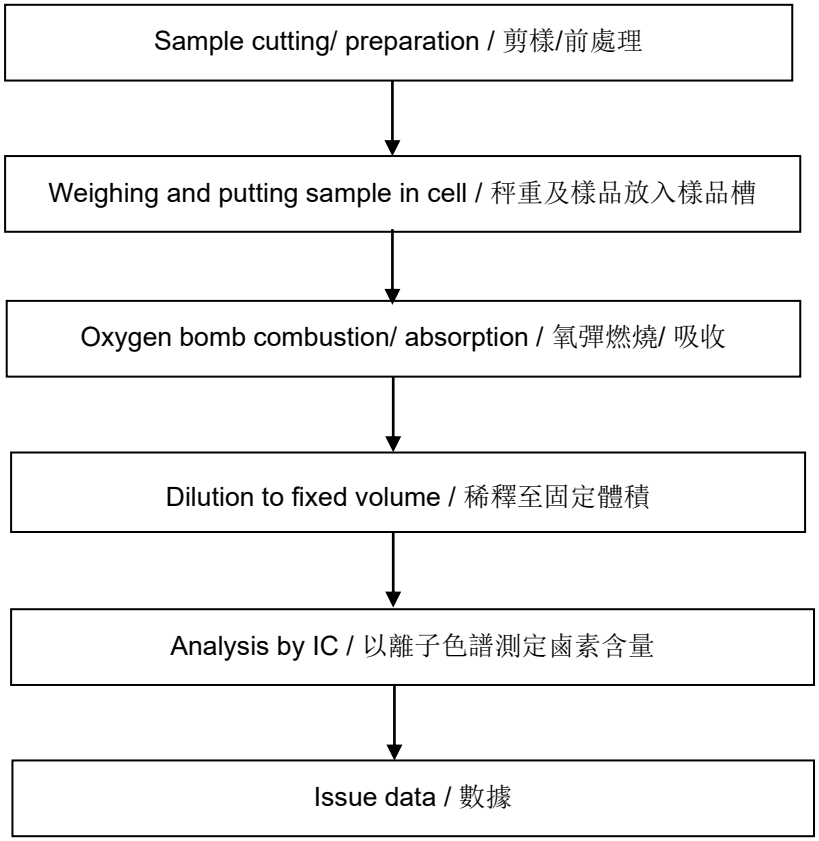
Negative/陰性 = Undetectable/未偵測到 ; Positive/陽性= Detectable/偵測到

* PFOS and its salts including: CAS no. 1763-23-1, 101360-77-4, 111873-33-7, 114174-50-4, 114519-83-4, 1203998-97-3, 124472-68-0, 213740-80-8, 2185049-59-4, 2205029-08-7, 251099-16-8, 258341-99-0, 2795-39-3, 29081-56-9, 29457-72-5, 307-35-7, 334529-63-4, 4021-47-0, 4021-48-1, 423-60-9, 423-92-7, 45298-90-6, 54439-46-2, 56773-42-3, 56773-44-5, 56773-56-9, 70225-14-8, 71463-74-6, 773895-92-4, 88825-77-8, 89560-90-7, 89560-91-8, 89560-92-9, 91036-71-4, 91036-72-5, 92011-18-2.

** PFOA and its salts including: CAS no. 335-67-1, 1376936-03-6, 1514-68-7, 17125-58-5, 17125-60-9, 2395-00-8, 222037-87-8, 277749-00-5, 32609-65-7, 33496-48-9, 335-64-8, 335-66-0, 335-93-3, 335-95-5, 35965-01-6, 3825-26-1, 423-52-9, 45285-51-6, 68141-02-6, 927835-01-6, 95658-47-2, 98065-31-7, 98241-25-9.

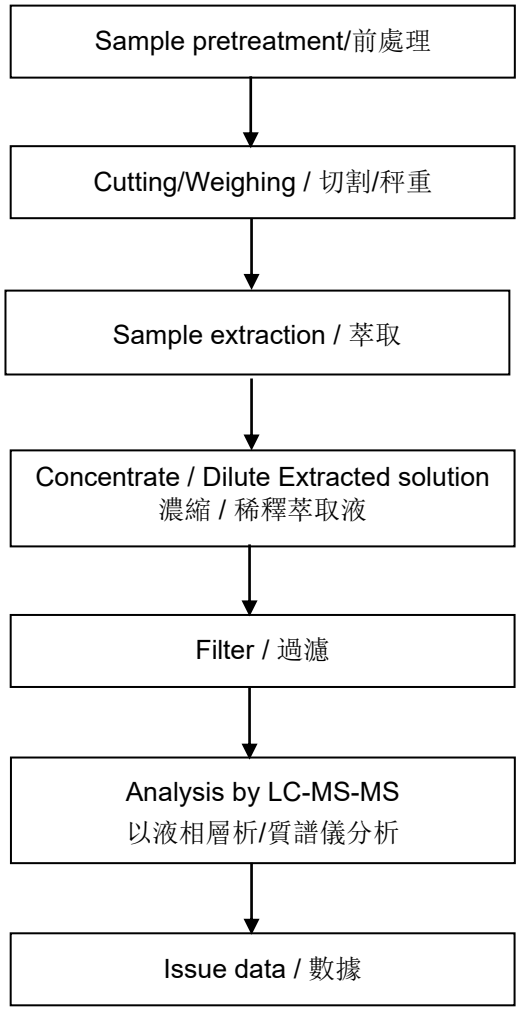
Testing procedure / 測試流程圖 :

Halogen/鹵素, Total organic fluorine/總有機氟



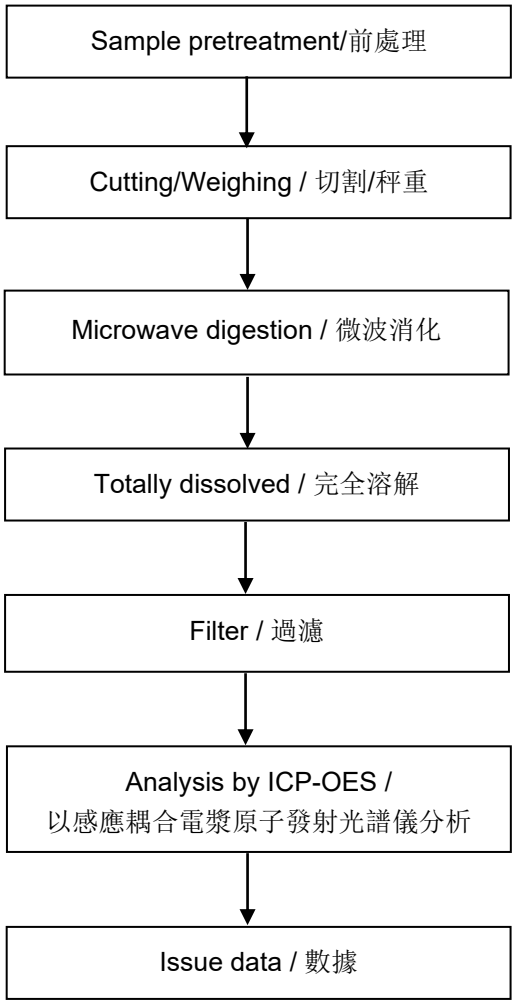
Testing procedure / 測試流程圖 :

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



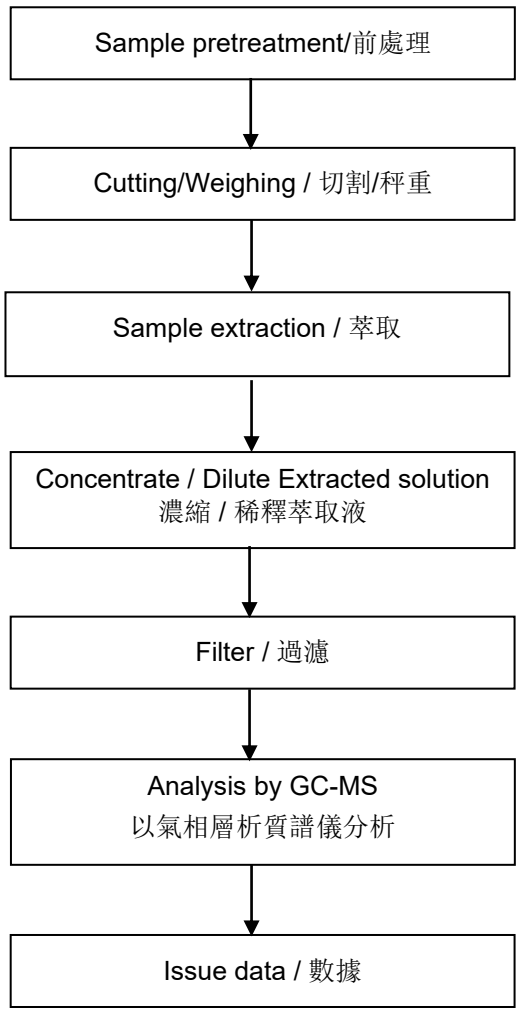
Testing procedure / 測試流程圖 :

As/砷, Sb/銻, Be/鈹, Ni/鎳, Sn/錫, P/磷



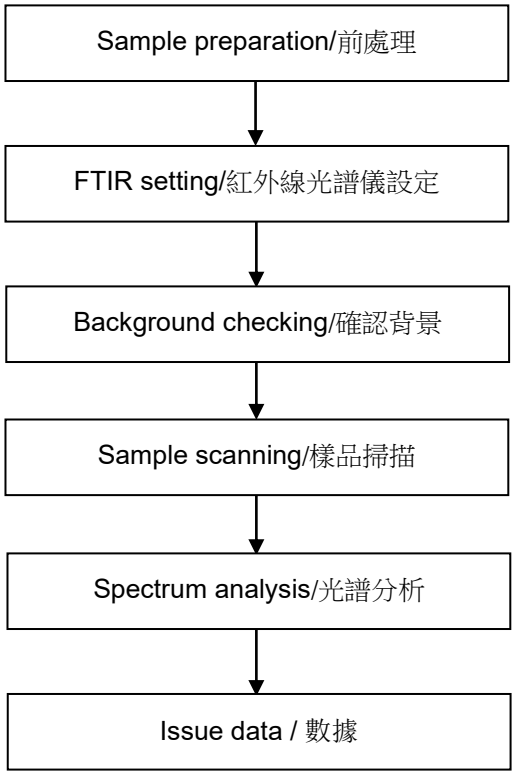
Testing procedure / 測試流程圖 :

Organotin compounds/有機錫化合物, Phthalates/鄰苯二甲酸酯, DBDPE/十溴二苯乙烷



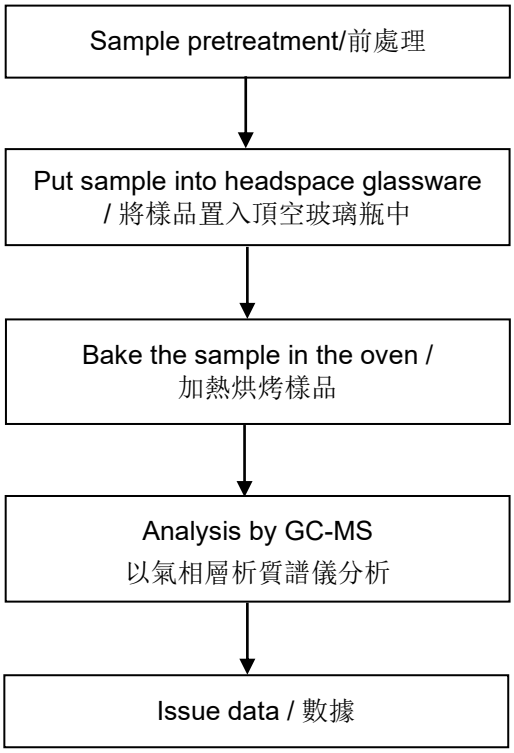
Testing procedure / 測試流程圖 :

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----