

環境永續與人類健康研究中心

委託檢測服務管理辦法

Regulations for the Management of Commissioned Testing  
Services for the Center for Environmental Sustainability  
and Human Health

制定部門：環境永續與人類健康研究中心

Established by: Center for Environmental Sustainability and Human Health

中華民國 113 年 01 月 12 日修訂

Amended on January 12, 2024

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113.01.12 中心事務委員會會議制訂

Established by the Center Council Meeting on 2024.01.12

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明志科技大學環境永續與人類健康研究中心委託檢測服務管理辦法  
MCUT Regulations for the Management of Commissioned Testing Services  
for the Center for Environmental Sustainability and Human Health

113.01.12 中心事務委員會會議制訂  
Established by the Center Council Meeting on 2024.01.12

第一條 目的

依據本校「委託檢測服務管理辦法」，妥善利用環境永續與人類健康研究中心（以下簡稱本中心）既有之儀器設備資源，提供校內外各單位檢驗分析服務，訂定「環境永續與人類健康研究中心委託檢測服務管理辦法」（以下簡稱本辦法）。

Article 1: Purpose

In accordance with the university's "Regulations for the Management of Commissioned Testing Services," and to efficiently utilize the existing instrumentation resources of the Center for Environmental Sustainability and Human Health (hereinafter referred to as "the Center"), and to provide testing and analysis services to internal and external units, the "Regulations for the Management of Commissioned Testing Services at the Center for Environmental Sustainability and Human Health" (hereinafter referred to as "these regulations") are hereby established.

第二條 適用範圍

本中心已建置各項檢測項目，均可接受各界委託檢測服務之申請。

Article 2: Scope of Application

The Center has established various testing items and is open to applications for commissioned testing services from all sectors.

第三條 受委託檢測服務內容及收費標準

- 一、委託人應依規定，須於 7 天前先以書面方式提出預約申請，並填妥「明志科技大學環境永續與人類健康研究中心委託檢測服務申請表」（表號：A0M0040101），送交本中心技士確認委託檢測服務內容，由本中心視儀器設備之使用狀況，安排檢測時間。
- 二、委託檢測服務收費標準如附表（表號：A0M0040201），其委託檢測前之注意事項，詳如附件一。

### Article 3: Content and Fee Schedule for Commissioned Testing Services

1. The client must submit a written reservation request at least 7 days in advance and complete the "Ming Chi University of Technology Center for Environmental Sustainability and Human Health Commissioned Testing Service Application Form" (Form No.: A0M0040101). The form should be submitted to the Center's technicians for confirmation of the commissioned testing service details. The Center will schedule the testing time based on the availability of the instrumentation.
2. The fee schedule for commissioned testing services is provided in the attached table (Form No.: A0M0040201). Precautions before commissioning testing services are detailed in Annex I.

### 第四條 受委託檢測服務費用運用方式

服務費用總金額之百分之二十為學校管理費，其他百分之八十為人事費、材料費、教育訓練費及儀器設備維修保養費，專款專用。

### Article 4: Utilization of Fees for Commissioned Testing Services

20% of the total service fee amount shall be allocated for university management expenses, and the remaining 80% shall be dedicated to personnel expenses, material costs, education and training expenses, and instrumentation equipment maintenance and servicing costs, with earmarked usage.

### 第五條 受委託檢測服務結果報告

- 一、受委託檢測服務結果報告，將以電子檔提供，並以 E-mail 方式傳送或以紙本報告郵寄給委託者。
- 二、委託單位不得將本中心檢測結果報告，用於商業廣告用途。如有商業廣告用途需求者，另依本校「研發成果使用校名(徽)、標誌暨商標管理辦法」規定辦理。

### Article 5: Reporting of Results for Commissioned Testing Services

1. The results report for commissioned testing services will be provided in electronic format and sent via email or mailed in hard copy to the commissioning party.
2. The commissioning party is not allowed to use the testing results report from the Center for commercial advertising purposes. If there is a need for commercial advertising, it should be handled in accordance with the university's "Regulations for the Use of University Names, Emblems, Logos, and Trademarks for Research and Development Achievements."

## 第六條 實施與修訂

本辦法經中心事務委員會會議通過，陳校長核定後公布實施，修訂時亦同。

### Article 6 Implementation and Amendment

The Regulations shall be promulgated and implemented after the passage of the Center Council Meeting and the approval of the president. The same shall apply to the amendments hereto.

**明志科技大學環境永續與人類健康研究中心**  
**委託檢測服務申請表**

委託單位填寫				
申請單位之系所/公司名稱			申請日期	年    月    日
收據/ <span style="background-color: yellow;">發票註1</span> 抬頭	<input type="checkbox"/> 收據 <input type="checkbox"/> 發票(加收 5%營業稅)	統一編號		
申請人姓名		聯絡電話		
電子信箱		通訊地址		
儀器設備名稱 <span style="background-color: yellow;">註2</span>		委測項目		
樣品數量		委測目的		
樣品種類	<input type="checkbox"/> 固態 <input type="checkbox"/> 液態 <input type="checkbox"/> 粉狀 <input type="checkbox"/> 濾紙 <input type="checkbox"/> 矽片 <input type="checkbox"/> 金屬網 <input type="checkbox"/> 其他：			
樣品性質(特性) <span style="background-color: yellow;">註3</span>				
需求說明	<input type="checkbox"/> 樣品需取回(請附上回郵郵資、包裝等) <span style="background-color: yellow;">註4</span> <input type="checkbox"/> 其他需求：			
本人已詳讀過本中心委託檢測服務管理辦法之委託檢測前注意事項，且確實填寫本表格。如有違反規則造成儀器設備損壞，願承擔賠償責任。 <span style="background-color: yellow;">註5</span>	委託單位之指導老師/公司主管(簽名)		委託單位之研究生/聯絡人	
委託分析結果領取方式：	<input type="checkbox"/> 逕至環境永續與人類健康研究中心領取 <input type="checkbox"/> E-mail <input type="checkbox"/> 郵寄			

備註：

註1：開立發票，需額外加收 5%營業稅。

註2：如使用 ICP-MS 分析需額外填寫 ICP-OES 樣品成份說明表。

註3：請務必誠實申報性質(特性)；有發現申報不實造成儀器設備污染或損壞時，本中心有權要求賠償。

註4：樣品運費(送件/回件) 客戶端自付。

註5：請詳讀，本中心委託檢測服務管理辦法之委託檢測前注意事項。

註6：本申請表所蒐集之公司/個人資料，作為委託分析聯繫之用途，保存於環境永續與人類健康研究中心 2 年。

註7：委託檢驗流程：填寫申請表→紙本送至本中心→中心報價→案件成立→中心安排檢測時間→委託單位樣品送測→中心完成實驗結果→中心發送繳費通知→委託單位繳費→中心確認完成收費→寄出收據/發票及檢測報告

繳款方式：

☐現金繳款：逕由總務處出納組繳款。

☐逕匯入學校帳戶：請務必於匯款單註明環境永續與人類健康研究中心檢測費及繳款人姓名/單位，並通知本中心已完成匯款。

請逕匯華南銀行泰山分行 008

專戶存款帳號：193200017296

戶名：財團法人明志科技大學

經由環境永續與人類健康研究中心確認入帳後，將由學校開立收據/發票後郵寄。

環境永續與人類健康研究中心填寫					
報價 日期	年 月 日	正式委託 日期	年 月 日	送樣 日期	
預估檢測 服務費用	<input type="checkbox"/> 收據 <input type="checkbox"/> 發票(加收 5%營業稅)	安排分析 日期	年 月 日	中心 樣品簽收人	
報價 經辦人		實際分析 日期	年 月 日	檢測序號	
實際檢測 服務費			安排之檢驗 操作人員		
出納繳款單 編號			通知繳款 日期	年 月 日	
委託單位 繳款日	年 月 日	收據/發票 號碼		收據/發票 寄出日期	年 月 日
報告編號			委測報告 寄送日期	年 月 日	

表號：A0M0040101



**MCUT Regulations for the Management of Commissioned Testing Services for  
the Center for Environmental Sustainability and Human Health  
Commissioned Testing Service Application Form**

<b>Commissioning Unit Information</b>				
Department/Company Name of the Applicant's Unit		Date of Application	(Y)    (M)    (D)	
Recipient/ Name	<input type="checkbox"/> Recipient <input type="checkbox"/> Invoice ( 5% Value Added Tax (VAT) to be Added )	Tax ID Number		
Applicant's Name		Contact Phone Number		
Email Address		Mailing Address		
Instrumentation Equipment Name		Commissioned Testing Items		
Sample Quantity		Purpose of Commissioned Testing		
Sample Type	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Powder <input type="checkbox"/> Filter Paper <input type="checkbox"/> Silicon Wafer <input type="checkbox"/> Metal Mesh <input type="checkbox"/> Other :			
Sample Properties/Characteristics <b>Note 3</b>				
Description of the Requirements	<input type="checkbox"/> Sample Retrieval Request (Please provide return postage, packaging, etc.) <b>Note 4</b> <input type="checkbox"/> Other Requirements:			
I have carefully read the precautions before commissioning testing services outlined in the Center's Regulations for Commissioned Testing Services and have accurately completed this form. In the event of any rule violations leading to equipment damage, I am willing to take responsibility for compensation. <b>Note 5"</b>	Supervising Teacher/Company Supervisor of the Commissioning Unit (Signature )		Graduate Student/Contact Person of the Commissioning Unit	
Method of Receiving Commissioned Analysis Results:	<input type="checkbox"/> Pick up directly at the Center for Environmental Sustainability and Human Health <input type="checkbox"/> E-mail <input type="checkbox"/> Mail Delivery			

Notes :

**Note 1: An additional 5% business tax is applicable for invoice issuance.**

**Note 2: If ICP-MS analysis is used, please fill out the ICP-OES sample composition description form separately.**

**Note 3: Please truthfully declare the nature and characteristics of the samples; false declarations may lead to contamination or damage to the equipment, and the Center reserves the right to seek compensation.**

**Note 4: The shipping cost for samples (sending and returning) is to be borne by the client.**

**Note 5: Please read carefully the pre-commissioning precautions in the Center's Regulations for Commissioned Testing Services.**

**Note 6: The company/personal information collected in this application form will be used for the purpose of commissioned testing contact and will be retained by the Center for 2 years.**

**Note 7: Commissioned testing process: Fill out the application form → Submit the hard copy to the Center → Center provides**

a quotation → Case established → Center schedules testing time → Commissioning unit sends samples → Center completes experimental results → Center sends payment notice → Commissioning unit makes payment → Center confirms completion of payment → Sends out receipts/invoices and testing reports.

**Payment Methods:**

- ☐ **Paying at the Cashier Section of the Office of General Affairs.**
- ☐ **By remittance to the MCUT account: Please be sure to indicate the "testing fee to the Center for Environmental Sustainability and Human Health" and the name/unit of payor on the remittance advice. And notify the center upon completion of the payment.**

**Please transfer to:**

**Bank: Hua Nan Commercial Bank, Taishan Branch (008)**  
**Dedicated Account: 193200017296**  
**Account name: Ming Chi University of Technology**

<b>After confirmation of the deposit by the Center for Environmental Sustainability and Human Health, the Center shall deliver the receipt by post after we receive the fee.</b>
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Center for Environmental Sustainability and Human Health - Application Form					
Quotation Date	(Y) (M) (D)	Official Commencement Date	(Y) (M) (D)	Sample Submission Date	(Y) (M) (D)
Estimated Testing Service Fees	<input type="checkbox"/> Recipient <input type="checkbox"/> Invoice ( 5% Value Added Tax (VAT) to be Added )	Scheduled Analysis Date	(Y) (M) (D)	Recipient for Center Samples	
Quotation Handler		Actual Analysis Date	(Y) (M) (D)	Test ID	
Actual Testing Service Fee			Assigned Inspection Operators		
Cashier Payment Receipt Number			Payment Due Date	(Y) (M) (D)	
Client Payment Due Date	(Y) (M) (D)	Receipt/Invoice Number		Receipt/Invoice Mailing Date	(Y) (M) (D)
Report Number			Report Shipment Date	(Y) (M) (D)	

Table Number: A0M0040101

## 環境永續與人類健康研究中心委託檢測服務收費標準

序號	儀器設備名(型號)	檢測項目	檢測費用	委託前 注意事項																
1	感應耦合電漿質譜儀 Inductively Coupled Plasma Mass Spectrometry (Agilent 7800 ICP-MS)	水溶液中微量金屬元素分析， 檢測濃度範圍：500 ppb 以下。	● 每個樣品或標準品 2,500 元 若需由本中心協助配置檢量線， 每條檢量線(5 個點)額外加收 15,000 元。	詳後頁附件一																
2	氣相層析串聯質譜儀(含熱脫附裝置) Triple Quadrupole GC/MS/MS System (Agilent 8890GC/7000D MS)	16 種多環芳香烴(PAHs)分析(溶液或石英濾紙 PM) ，檢測濃度範圍：500 ppb 以下。 <table><tr><td>Naphthalene</td><td>Benz[a]anthracene</td></tr><tr><td>Acenaphthylene</td><td>Chrysene</td></tr><tr><td>Acenaphthene</td><td>Benzo[b]fluoranthene</td></tr><tr><td>Fluorene</td><td>Benzo[k]fluoranthene</td></tr><tr><td>Phenanthrene</td><td>Benzo[a]pyrene</td></tr><tr><td>Anthracene</td><td>Dibenz[a,h]anthracene</td></tr><tr><td>Fluoranthene</td><td>Indeno[1,2,3-cd]pyrene</td></tr><tr><td>Pyrene</td><td>Benzo[g,h,i]perylene</td></tr></table>	Naphthalene	Benz[a]anthracene	Acenaphthylene	Chrysene	Acenaphthene	Benzo[b]fluoranthene	Fluorene	Benzo[k]fluoranthene	Phenanthrene	Benzo[a]pyrene	Anthracene	Dibenz[a,h]anthracene	Fluoranthene	Indeno[1,2,3-cd]pyrene	Pyrene	Benzo[g,h,i]perylene	● 每個樣品或標準品 4,000 元 若需由本中心協助配置檢量線， 每條檢量線(5 個點)額外加收 22,500 元。	詳後頁附件一
Naphthalene	Benz[a]anthracene																			
Acenaphthylene	Chrysene																			
Acenaphthene	Benzo[b]fluoranthene																			
Fluorene	Benzo[k]fluoranthene																			
Phenanthrene	Benzo[a]pyrene																			
Anthracene	Dibenz[a,h]anthracene																			
Fluoranthene	Indeno[1,2,3-cd]pyrene																			
Pyrene	Benzo[g,h,i]perylene																			
3	氣相層析四極桿串聯飛行管質譜儀 (含熱脫附裝置) Mass Quadrupole Time-of-Flight GC/MS System (Agilent 8890GC/7250 Q-TOFMS)	半揮發性有機物(SVOCs)/揮發性有機物(VOCs)之定 性分析(溶液或石英濾紙 PM)	每個樣品 5,000 元	詳後頁附件一																

序號	儀器設備名(型號)	檢測項目	檢測費用	委託前 注意事項
4	奈米粒徑分析儀 Nanoparticle Size Analyzer (PSS AccuSizerFXnano (A9000-AD))	水溶液中之粒徑大小及顆粒數分析 (檢測粒徑範圍：0.15–400 μm)	<ul style="list-style-type: none"> <li>● 每小時 1,000 元</li> <li>● 每個樣品基本費用以 1 小時計算。</li> <li>● 每增加 0.5 小時，加收 \$500 元 (未滿 0.5 小時，以 0.5 小時計算)</li> </ul>	詳後頁附件一
5	顯微紅外光譜儀 FT-IR Microscopy (Thermo Fisher NICOLET iN10)	鑑別未知物的結構組成或確定其化學成分，包括有機、無機材料樣品的定性分析。 (分析樣品小於 0.5 mm <sup>2</sup> 的『區域』或者『顆粒』)	<ul style="list-style-type: none"> <li>● 每小時 1,500 元</li> <li>● 每個樣品基本費用以 1 小時計算。</li> <li>● 每增加 0.5 小時，加收 \$750 元 (未滿 0.5 小時，以 0.5 小時計算)</li> </ul>	詳後頁附件一
6	X 射線螢光光譜儀 X-ray Fluorescence Spectrometry (Malvern Panalytical Epsilon 4)	鐵氟龍濾紙上微量金屬元素分析	每個樣品 1,500 元	詳後頁附件一
7	氣膠碳成份分析儀 Multi-Wavelength OC/EC Analyzer (Magee DRI2015)	氣膠懸浮微粒中有機碳(OC)/元素碳(EC)/總碳(TC) (偵測極限：Total Carbon: 0.18 μg/cm <sup>2</sup> )	每個樣品 2,500 元	詳後頁附件一
8	離子層析儀 Ion Chromatograph (Metrohm 930Compact IC Flex)	水溶液中陰陽離子分析 (檢測濃度範圍：1-500 ppb)	<ul style="list-style-type: none"> <li>● 每個樣品或標準品 1,500 元</li> <li>● 若需由本中心協助配置檢量線，每條檢量線(5 個點)額外加收 10,000 元。</li> </ul>	詳後頁附件一
9	其他	請聯繫中心技士 電話：02-2908-9899#7600 email：betty1007@mail.mcut.edu.tw	視情況，另行報價	詳後頁附件一

備註：本中心成員免收費；校內單位、長庚大學及長庚科技大學以收費標準之 7 折計算；台塑相關企業以收費標準之 8 折計算。

表號：A0M0040201

一、申請檢測流程

- 1、填寫申請表：須於**7天前**先以**書面**方式提出預約申請，送交本中心技士確認委託檢測服務內容。(請務必**詳細填寫**委託檢測申請表，如有問題，麻煩致電本中心與中心技士確認(02-2908-9899#7600 / email: [betty1007@mail.mcut.edu.tw](mailto:betty1007@mail.mcut.edu.tw))。)
- 2、本研究中心先行報價，確認接受委託後，由本中心視儀器設備之使用狀況，安排檢測時間，並請委託單位**於排定檢測日期前3天內**送樣品至本中心；為避免樣品檢測過程可能發生的爭議，**請先與中心技士聯繫檢測行程**(02-2908-9899#7600 / email: [betty1007@mail.mcut.edu.tw](mailto:betty1007@mail.mcut.edu.tw))。)
- 3、繳費方式：

[1] 現金繳款：逕由總務處出納組繳款。

[2] 逕匯入學校帳戶：請務必於匯款單註明**環境永續與人類健康研究中心檢測費及繳款人姓名/單位**，並通知本中心已完成匯款。  
請逕匯

**華南銀行泰山分行 008**

**專戶存款帳號：193200017296**

**戶名：財團法人明志科技大學**

經由環境永續與人類健康研究中心確認入帳後，將由學校開立收據/發票後郵寄。

二、委測單位因故無法如期將樣品送達時，應事先以電話或書面通知，並重新預約。若連續三次無法依預約時間送件檢測且未事先通知者，半年內不再接受該單位之預約。

**三、請務必誠實申報檢測樣品性質(特性)；有發現申報不實造成儀器設備污染或損壞時，本中心有權要求賠償。**

四、檢測完成數據結果之分析及解釋，請自行處理。且委託單位**不得將本中心檢測結果報告，用於商業廣告用途**。如有商業廣告用途需求者，另一本校「研發成果使用校名(徽)、標誌暨商標管理辦法」規定辦理。

五、委託服務時間：星期一至星期五，每日上午9點至下午5點。

六、分析時間：視樣品特性與數量而定，由本中心排程決定。於收到樣品後1-2週內，得知分析結果。

序號	儀器設備名/型號	注意事項
1	感應耦合電漿質譜儀 Inductively Coupled Plasma Mass Spectrometry (Agilent 7800 ICP-MS)	<ul style="list-style-type: none"> <li>● <u>任何混濁或未經澄清化處理</u>(如離心、過濾等)的樣品或濃度過高將<u>拒絕接受</u>。本儀器暫不接受固體樣品之委託分析服務。</li> <li>● 本研究中心之 ICP-MS <u>無法接受用氫氟酸(HF)消化之樣品</u>。</li> <li>● <u>Au、Hg、鹵素元素無法分析</u>。</li> <li>● <u>固體樣品</u>需先經溶解或經消化(灰化)後，<u>配製成澄清之液體</u>才能進行分析。</li> <li>● 委託人需詳細說明樣品性質/特性(<u>需將樣品的處理步驟及最後樣品溶液中的大致成份告知</u>)，並出示感應耦合電漿光譜分析儀(ICP-OES)分析數據，以避免儀器損壞。 (需額外填寫<u>感應耦合電漿質譜儀樣品成份說明表</u>)</li> <li>● 本儀器現階段可提供<u>澄清水溶液(酸濃度<math>\leq 2\%</math>，且用 0.22<math>\mu\text{m}</math> 濾紙過濾)</u>樣品中 Ag、Al、As、Ba、Be、Bi、Ca、Cd、Co、Cr、Cs、Cu、Fe、Ga、In、K、Li、Mg、Mn、Na、Ni、Pb、Rb、Se、Sr、Ti、V、U、Zn 等 29 種元素，<b>100ppt 至 500ppb</b> 濃度之分析。</li> <li>● 若需要分析非 Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Ti, V, U, Zn 之 29 種元素，則申請者需<u>自行提供標準液</u>。</li> <li>● 為了減低操作人員的工作負擔及避免不必要的樣本污染與分析困擾，委託者在送樣分析時，應盡量將樣本置於規格為：<b>15mL 或 50mL 之離心管</b>中，並清楚標示樣本編號，操作人員將盡量避免樣本之傾倒與稀釋動作。</li> <li>● 申請委託服務時，委託者可自行配製欲分析元素之各種濃度範圍的標準溶液，<u>標準溶液之體積以 10 mL 以上為宜</u>。如需代為配製各種濃度範圍的標準溶液，委託者另需負擔標準溶液配製費用。</li> </ul>
2	氣相層析串聯質譜儀(含熱脫附裝置) Triple Quadrupole GC/MS/MS System (Agilent 8890GC/7000D MS)	本儀器現階段可提供美國環保署公告 16 種多環芳香烴(PAHs) <b>1ppb 至 500ppb</b> 濃度之分析。
3	氣相層析四極桿串聯飛行管質譜儀(含熱脫附裝置) Mass Quadrupole Time-of-Flight GC/MS System (Agilent 8890GC/7250 Q-TOFMS)	本儀器現階段可提供 <u>半揮發性/非發性有機物定性服務</u> 。
4	奈米粒徑分析儀 Nanoparticle Size Analyzer	本儀器現階段可提供檢測液體中樣品 <b>0.15–400 <math>\mu\text{m}</math></b> 範圍之粒徑及顆粒數。

序號	儀器設備名/型號	注意事項
	(PSS AccuSizerFXnano (A9000-AD))	
5	顯微紅外光譜儀 FT-IR Microscopy (Thermo Fisher NICOLET iN10)	本儀器現階段可提供檢測樣品已前處理後，經過濾置於 <b>1cm*1cm</b> 大小之碳化矽片或金屬濾網上之官能基鑑定。
6	X 射線螢光光譜儀 X-ray Fluorescence Spectrometry (Malvern Panalytical Epsilon 4)	本儀器現階段可提供， <b>鐵氟龍濾紙</b> (直徑須介於 27-51.5mm)上 Al、As、Au、Ba、Br、Ca、Cd、Cl、Co、Cr、Cs、Cu、Fe、Ga、Ge、Hg、I、K、La、Mg、Mn、Mo、Na、Nb、Ni、P、Pb、Pd、Rb、Rh、S、Sb、Sc、Se、Si、Sn、Sr、Te、Ti、V、W、Y、Zn、Zr 等 <b>44 種元素</b> 鑑定。
7	氣膠碳成份分析儀 Multi-Wavelength OC/EC Analyzer (Magee DRI2015)	本儀器現階段可提供檢測 <b>石英濾紙</b> 上有機碳、元素碳及總碳含量。 (送樣之石英濾紙大小至少能 <b>punch</b> 三個 <b>0.5cm</b> 直徑圓面積。)
8	離子層析儀 Ion Chromatograph (Metrohm 930Compact IC Flex)	本儀器現階段可提供 <b>澄清水溶液</b> 樣品 陰離子分析項目：氟 (F <sup>-</sup> )、氯 (Cl <sup>-</sup> )、亞硝酸根 (NO <sup>2-</sup> )、溴 (Br <sup>-</sup> )、硝酸根 (NO <sup>3-</sup> )、磷酸根 (PO <sup>4</sup> <sup>3-</sup> )、硫酸根 (SO <sup>4</sup> <sup>2-</sup> )等， <b>檢測濃度範圍：500 ppb 以下</b> 。 陽離子分析項目：鋰 (Li <sup>+</sup> )、鈉 (Na <sup>+</sup> )、銨 (NH <sup>4+</sup> )、鉀 (K <sup>+</sup> )、鈣 (Ca <sup>2+</sup> )及鎂 (Mg <sup>2+</sup> )等陽離子， <b>檢測濃度範圍：500 ppb 以下</b> 。
9	其他	以產學合作/學術研究或其他形式合作，收費另以合約議定之。  請聯繫中心技士 電話：02-2908-9899#7600 email： <a href="mailto:betty1007@mail.mcut.edu.tw">betty1007@mail.mcut.edu.tw</a>



## Fee Schedule for Testing Services Commissioned by the Center for Environmental Sustainability and Human Health

No.	Instrument/Equipment Name (Model)	Testing Items	Testing Fee	Pre-Commissioning Considerations																
1	感應耦合電漿質譜儀 Inductively Coupled Plasma Mass Spectrometry (Agilent 7800 ICP-MS)	Trace Metal Analysis in Aqueous Solution, Detection Concentration Range: Below 500 ppb	Each Sample or Standard: NT\$2,500 ● If assistance is required from our center to configure calibration curves, there will be an additional charge of NT\$15,000 for each calibration curve (5 points).	See Attachment One on the following page for details.																
2	氣相層析串聯質譜儀(含熱脫附裝置) Triple Quadrupole GC/MS/MS System (Agilent 8890GC/7000D MS)	Analysis of 16 Polycyclic Aromatic Hydrocarbons (PAHs) in Solution or Quartz Filter PM, Detection Concentration Range: Below 500 ppb. <table><tr><td>Naphthalene</td><td>Benz[a]anthracene</td></tr><tr><td>Acenaphthylene</td><td>Chrysene</td></tr><tr><td>Acenaphthene</td><td>Benzo[b]fluoranthene</td></tr><tr><td>Fluorene</td><td>Benzo[k]fluoranthene</td></tr><tr><td>Phenanthrene</td><td>Benzo[a]pyrene</td></tr><tr><td>Anthracene</td><td>Dibenz[a,h]anthracene</td></tr><tr><td>Fluoranthene</td><td>Indeno[1,2,3-cd]pyrene</td></tr><tr><td>Pyrene</td><td>Benzo[g,h,i]perylene</td></tr></table>	Naphthalene	Benz[a]anthracene	Acenaphthylene	Chrysene	Acenaphthene	Benzo[b]fluoranthene	Fluorene	Benzo[k]fluoranthene	Phenanthrene	Benzo[a]pyrene	Anthracene	Dibenz[a,h]anthracene	Fluoranthene	Indeno[1,2,3-cd]pyrene	Pyrene	Benzo[g,h,i]perylene	Each Sample or Standard: NT\$4,000 ● If assistance is required from our center to configure calibration curves, there will be an additional charge of NT\$22,500 for each calibration curve (5 points).	See Attachment One on the following page for details.
Naphthalene	Benz[a]anthracene																			
Acenaphthylene	Chrysene																			
Acenaphthene	Benzo[b]fluoranthene																			
Fluorene	Benzo[k]fluoranthene																			
Phenanthrene	Benzo[a]pyrene																			
Anthracene	Dibenz[a,h]anthracene																			
Fluoranthene	Indeno[1,2,3-cd]pyrene																			
Pyrene	Benzo[g,h,i]perylene																			
3	氣相層析四極桿串聯飛行管質譜儀 (含熱脫附裝置) Mass Quadrupole Time-of-Flight GC/MS System (Agilent 8890GC/7250 Q-TOFMS)	Identification of Semi-Volatile Organic Compounds (SVOCs) / Volatile Organic Compounds (VOCs) in Solution or Quartz Filter PM.	Each Sample: NT\$5,000.	See Attachment One on the following page for details.																
4	奈米粒徑分析儀 Nanoparticle Size Analyzer (PSS AccuSizerFXnano (A9000-AD))	Analysis of Particle Size and Particle Count in Aqueous Solution (Detectable Particle Size Range: 0.15–400 μm).	Hourly Fee: NT\$1,000. ● The basic fee for each sample is calculated on an hourly basis. ● For each additional 0.5 hours or less, an extra fee of \$500 will be applied.	See Attachment One on the following page for details.																

No.	Instrument/Equipment Name (Model)	Testing Items	Testing Fee	Pre-Commissioning Considerations
5	顯微紅外光譜儀 FT-IR Microscopy (Thermo Fisher NICOLET iN10)	Identification of the structural composition of unknown substances or determination of their chemical components, including qualitative analysis of organic and inorganic material samples. (Analysis conducted on regions or particles of samples smaller than 0.5 mm <sup>2</sup> .)	<ul style="list-style-type: none"> <li>Hourly Fee: NT\$1,500.</li> <li>The basic fee for each sample is calculated on an hourly basis.</li> <li>For each additional 0.5 hours or less, an extra fee of \$750 will be applied.</li> </ul>	See Attachment One on the following page for details.
6	X 射線螢光光譜儀 X-ray Fluorescence Spectrometry (Malvern Panalytical Epsilon 4)	Analysis of Trace Metal Elements on PTFE (Polytetrafluoroethylene) Filter Paper.	Each Sample: NT\$1,500.	See Attachment One on the following page for details.
7	氣膠碳成份分析儀 Multi-Wavelength OC/EC Analyzer (Magee DRI2015)	Analysis of Organic Carbon (OC), Elemental Carbon (EC), and Total Carbon (TC) in Suspended Particulate Matter (Aerosol). (Detection Limit: Total Carbon - 0.18 µg/cm <sup>2</sup> ).	Each Sample: NT\$2,000	See Attachment One on the following page for details.
8	離子層析儀 Ion Chromatograph (Metrohm 930Compact IC Flex)	Analysis of Anions and Cations in Aqueous Solution (Detection Concentration Range: 1-500 ppb).	<ul style="list-style-type: none"> <li>Each Sample or Standard: NT\$1,500</li> <li>If assistance is required from our center to configure calibration curves, there will be an additional charge of NT\$10,000 for each calibration curve (5 points).</li> </ul>	See Attachment One on the following page for details.
9	其他	Please contact the center technician: Phone: 02-2908-9899#7600 Email: betty1007@mail.mcut.edu.tw	Quotation will be provided as per the situation.	See Attachment One on the following page for details.

**Note: Members of the center are exempt from fees; internal units, Chang Gung University, and Chang Gung University of Science and Technology are charged at 70% of the standard rate; related enterprises of Formosa Plastics Group are charged at 80% of the standard rate.**

Table Number: A0M0040201

# Pre-Commissioning Considerations for Environmental Sustainability and Human Health Research Center Testing Services

## Attachment One

### I. Testing Application Proces

1、 Fill out the Application Form: Submit a written appointment request **at least 7 days** in advance, and send it to the center technician for confirmation of the commissioned testing service details. (Please ensure to complete the testing application form thoroughly. If you have any questions, kindly contact the center technician at 02-2908-9899#7600 or email: [betty1007@mail.mcut.edu.tw](mailto:betty1007@mail.mcut.edu.tw)). °

2、 The research center will provide a preliminary quotation. Upon acceptance of the commission, the center will schedule the testing based on the condition of the instruments. **The client is requested to submit the samples to the center 3 days before the scheduled testing date.** To avoid potential disputes during the testing process, **please contact the center technician in advance to confirm the testing schedule** (02-2908-9899#7600 / email: [betty1007@mail.mcut.edu.tw](mailto:betty1007@mail.mcut.edu.tw)).

#### 3、 Payment Methods:

[1] Paying at the Cashier Section of the Office of General Affairs.

[2] By remittance to the MCUT account: Please be sure to indicate the "testing fee to the Center for Environmental Sustainability and Human Health" and the name/unit of payor on the remittance advice. And notify the center upon completion of the payment.

Please transfer to:

**Bank: Hua Nan Commercial Bank, Taishan Branch (008)**

**Dedicated Account: 193200017296**

**Account name: Ming Chi University of Technology**

**After confirmation of the deposit by the Center for Environmental Sustainability and Human Health, the Center shall deliver the receipt by post after we receive the fee.**

II. In case the commissioning unit is unable to deliver the samples on schedule due to unforeseen circumstances, prior notification by phone or in writing is required, and a new appointment should be made. If the unit fails to deliver the samples for testing for three consecutive times without prior notice, no further appointments from that unit will be accepted within six months.

**III. Please honestly declare the nature (characteristics) of the testing samples; if it is discovered that false information has been provided resulting in contamination or damage to the instruments, the center reserves the right to request compensation.**

- IV. Analysis and interpretation of the completed test data results are the responsibility of the commissioning unit. **The commissioning unit is not allowed to use the test result report from the center for commercial advertising purposes.** If there is a need for commercial advertising, it should be handled according to the regulations of the 'Management Measures for the Use of the University's Name, Emblem, Logo, and Trademark on Research and Development Achievements' of this university.
- V. Commissioning Service Hours: Monday to Friday, from 9:00 AM to 5:00 PM daily.
- VI. Analysis Time: Depending on the characteristics and quantity of the samples, it will be scheduled and determined by the center. Results of the analysis will be provided within 1-2 weeks upon receipt of the samples.

# Pre-Commissioning Considerations for Environmental Sustainability and Human Health Research Center Testing Services

## Attachment One

No.	Instrument/Equipment Name (Model)	Precautions
1	感應耦合電漿質譜儀 Inductively Coupled Plasma Mass Spectrometry (Agilent 7800 ICP-MS)	<ul style="list-style-type: none"> <li>● <b>Any turbid or untreated</b> (e.g., not clarified through processes such as centrifugation or filtration) <b>samples, or samples with excessively high concentrations, will be rejected.</b> The instrument currently does not accept commissioned analysis services for solid samples.</li> <li>● The ICP-MS at this Center <b>cannot accept samples digested with hydrofluoric acid (HF).</b></li> <li>● <b>Gold (Au), mercury (Hg), and halogen elements cannot be analyzed.</b></li> <li>● <b>Solid samples</b> must be dissolved or digested (ashed) first and <b>prepared into a clarified liquid before analysis can be performed.</b></li> <li>● The client must provide a detailed description of the sample properties/characteristics <b>(including the processing steps of the sample and the approximate composition of the final sample solution)</b> and submit Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) analysis data to prevent damage to the equipment. <b>(Additional completion of the ICP-OES Sample Composition Description Form is required.)"</b></li> <li>● At present, the instrument can analyze samples <b>in clarified aqueous solutions (acid concentration <math>\leq 2\%</math>, filtered with <math>0.22\mu\text{m}</math> filter paper)</b> for 29 elements including Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Tl, V, U, Zn, at concentrations ranging from <b>100ppt to 500ppb</b></li> <li>● If analysis for elements other than Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Tl, V, U, Zn is required, <b>the applicant must provide the standard solution themselves</b></li> <li>● To reduce the workload on the operating personnel and avoid unnecessary sample contamination and analytical challenges, the client, when submitting samples for analysis, should place the samples <b>in centrifuge tubes with specifications of 15mL or 50mL.</b> Clearly label the sample number, and the operators will make efforts to minimize pouring and dilution actions on the samples.</li> <li>● When applying for commissioned services, the client may prepare standard solutions for the desired concentration ranges of the elements to be analyzed. <b>The volume of the</b></li> </ul>

No.	Instrument/Equipment Name (Model)	Precautions
		<b>standard solution should be at least 10 mL.</b> If there is a need for the center to prepare standard solutions for various concentration ranges, the client will incur additional costs for the preparation of standard solutions.
2	氣相層析串聯質譜儀(含熱脫附裝置) Triple Quadrupole GC/MS/MS System (Agilent 8890GC/7000D MS)	At present, the instrument can analyze 16 types of <b>Polycyclic Aromatic Hydrocarbons (PAHs) in concentrations ranging from 1ppb to 500ppb</b> , as specified by the United States Environmental Protection Agency (EPA).
3	氣相層析四極桿串聯飛行管質譜儀(含熱脫附裝置) Mass Quadrupole Time-of-Flight GC/MS System (Agilent 8890GC/7250 Q-TOFMS)	At present, the instrument can <b>provide qualitative analysis services for semi-volatile/non-volatile organic compounds.</b>
4	奈米粒徑分析儀 Nanoparticle Size Analyzer (PSS AccuSizerFXnano (A9000-AD))	At present, the instrument can <b>provide detection of particle size and particle count in the range of 0.15–400 µm for samples in liquid form.</b>
5	顯微紅外光譜儀 FT-IR Microscopy (Thermo Fisher NICOLET iN10)	At present, the instrument can provide detection of functional group identification for pre-processed samples that have been filtered and placed <b>on a 1cm*1cm-sized silicon carbide sheet or metal mesh.</b>
6	X 射線螢光光譜儀 X-ray Fluorescence Spectrometry (Malvern Panalytical Epsilon 4)	At present, the instrument can provide identification of <b>44 elements</b> including Al, As, Au, Ba, Br, Ca, Cd, Cl, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hg, I, K, La, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Pd, Rb, Rh, S, Sb, Sc, Se, Si, Sn, Sr, Te, Ti, V, W, Y, Zn, Zr on <b>Teflon filters</b> (with a diameter ranging from 27-51.5mm).
7	氣膠碳成份分析儀 Multi-Wavelength OC/EC Analyzer (Magee DRI2015)	At present, the instrument can provide detection of organic carbon, elemental carbon, and total carbon content on <b>quartz filters. (The size of the submitted quartz filter should be large enough to punch three 0.5cm diameter circular areas.)</b>
8	離子層析儀 Ion Chromatograph (Metrohm 930Compact IC Flex)	At present, the instrument can provide analysis for <b>clarified aqueous solution samples.</b> Anion analysis items: Fluoride (F-), Chloride (Cl-), Nitrite (NO2-), Bromide (Br-), Nitrate (NO3-), Phosphate (PO43-), Sulfate (SO42-), etc. <b>Detection concentration range: Below 500 ppb.</b> Cation analysis items: Lithium (Li+), Sodium (Na+), Ammonium (NH4+), Potassium (K+), Calcium (Ca2+), and Magnesium (Mg2+), etc. <b>Detection concentration range: Below 500 ppb.</b>
9	Other	Collaboration through industry-academic partnership, academic research, or other forms will incur separate charges as stipulated in the contract Please contact the center technician:

No.	Instrument/Equipment Name (Model)	Precautions
		Phone: 02-2908-9899#7600 Email: betty1007@mail.mcut.edu.tw

## 環境永續與人類健康研究中心感應耦合電漿質譜儀樣品成份說明表

1.申請者姓名		2.收件編號 (檢測單位填寫)	
3.樣品是否經 0.22μm 過濾	<input type="checkbox"/> 是	<input type="checkbox"/> 否	
4.樣品前處理方式			
5.樣品酸鹼度	pH =		
6.是否提供 ICP-OES 檢測後之數據報告	<input type="checkbox"/> 是	<input type="checkbox"/> 否	
7. ICP-OES 檢測後濃度範圍			
8.樣品數量			
9.欲分析樣品檢量線濃度範圍			
<b>*本人已詳讀過本研究中心委託檢測服務管理辦法之委託檢測前注意事項，且確實填寫本表格。如有違反規則造成儀器設備損壞，願承擔賠償責任。</b>	委託單位之指導老師/公司主管(簽名)：		

**\*備註：請務必誠實申報；有發現申報不實造成儀器設備污染或損壞時，本中心有權要求賠償。**



**Environmental Sustainability and Human Health Research Center**  
**Inductively Coupled Plasma Mass Spectrometry Sample Composition Description Form**

1. Applicant's name		2. Receipt number (Filled by testing unit)	
3. Has the sample been filtered through 0.22μm?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
4. Sample pretreatment method			
5. Sample pH	pH=		
6. Is the ICP-OES test data report provided?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
7. Concentration range after ICP-OES testing			
8. Quantity of samples			
9. Intended range of calibration curve concentrations for sample analysis			
<b>*I have thoroughly read the precautions for commissioned testing services in the regulations of the Center, and I have accurately completed this form. In the event of any violation leading to damage to the equipment, I am willing to take responsibility for compensation.</b>	Supervisor/Company Supervisor of the  Contracting Entity (Signature):		

**\*Notes : Remarks: Please be honest in your declaration; if any false reporting is discovered leading to contamination or damage to the equipment, the center reserves the right to seek compensation**