

Litt-C Filtration Analysis Services

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Apparent analysis of contaminants

污染物的表觀分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
顯微分析 Optical microscopic analysis	1.觀察濾材表面污染物 的外形 Observe impurity's morphology on membrane surface	體視顯微鏡 binocular stereo 樣品: 濾心 1 pc 或 符合測試尺寸的濾 材 (Ø1)	with the lab sample: 9 days individually for	Days after receipt of sample: 9 days If urgent: 7 days
	2.用片膜或網片攔取雜 質, 觀察污染物的外形 Retain impurities on filter disc and observe their type and appearance	體視顯微鏡 binocular stereo 樣品: 料液 500 ml (Ø2)		

Ø1: Sample type & quantity required:
Filter sample x 1 pc or filter media with appropriate dimension for testing

Ø2: Sample type & quantity required: Sample fluid 500 ml



Apparent analysis of contaminants

污染物的表觀分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
SEM分析 scanning electron microscope analysis	. ,	需要噴白金 need to spray gold 樣品: 濾心 1 pc 或 符合測試尺寸的濾 材 (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 9 days If urgent: 7 days
	2.用片膜或網片攔取雜 質, 觀察污染物的外形 Retain impurities on filter disc and observe their type and appearance	需要噴白金 need to spray gold 樣品: 料液 500 ml (Ø2)		

Ø1: Sample type & quantity required:
Filter sample x 1 pc or filter media with appropriate dimension for testing

Ø2: Sample type & quantity required: Sample fluid 500 ml



Qualitative analysis of contaminants

污染物的定性分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
EDS元素分析 Energy dispersion spectrum analysis	結合SEM,分析污染物的元素成份及比例 Combined with SEM to analyze the element composition & rate of contamination	必須結合SEM進行 must be combined with SEM analysis 樣品: 濾心 1 pc 或符 合測試尺寸的濾材 (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 10 days If urgent: 8 days

Ø1: Sample type & quantity required: Filter sample x 1 pc or filter media with appropriate dimension for testing



Qualitative analysis of contaminants

污染物的定性分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
FT-IR	經由官能基的評估分析 Judge the type of contaminant through the functional group	樣品需要2*2mm 以上 sample size: > 2 x 2 mm 樣品: 濾心 1 pc 或符合測試尺寸 的濾材 (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 10 days If urgent: 8 days
Micro FT-IR	在超高倍率顯微條件下, 經由官能基的評估分析 Judge the type of contaminant through the functional group based on ultra-high magnification	5 µm 以上雜質 sample size: >= 5 micron 樣品: 濾心 1 pc (Ø2)	Please consult with the lab individually for details	Days after receipt of sample: 10 days If urgent: 8 days

Ø1: Sample type & quantity required:
Filter sample x 1 pc or filter media with appropriate dimension for testing



Microorganism and organic compounds detection

微生物,有機物檢測

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
微生物污染	評估水源中微生物污染的 程度	樣品: 水樣品 100 ml (Ø1)	Please consult with the lab	Days after receipt of sample: 12 days
Microorganism contamination	Evaluate the degree of microbial contamination in water		individually for details	If urgent: 8 days

Ø1: Sample type & quantity required: Sample water x 100 ml



Microorganism and organic compounds detection

微生物,有機物檢測

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
TOC	總有機碳分析-評估水樣 的中的有機物汙染程度 Total organic carbon analysis - Evaluate the TOC pollution levels in the water based samples	薄膜電導法 membrane conduct metric detection technology 樣品: 水樣品 100 ml (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 9 days If urgent: 7 days

Ø1: Sample type & quantity required: Sample water x 100 ml



Microorganism and organic compounds detection微

生物,有機物檢測

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
COD	評估廢水(污水)中有 機物相對含量 Evaluate the organic matter content in the waste water (polluted water)	重鉻酸鉀法 potassium dichromate 樣品: 水樣品 200 ml (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 9 days If urgent: 7 days

Ø1: Sample type & quantity required: Sample water x 200 ml



Microorganism and organic compounds detection

微生物,有機物檢測

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
判定菌種 Strains to determine	判斷細菌種類 Strains to determine	樣品: 水樣品 100 ml (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 15 days

Ø1: Sample type & quantity required: Sample water x 100 ml



料液顆粒分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
雷射顆粒計數 Laser particle count	1μm-100μm之間的顆粒計數 (<10000顆/ml) Particle count ranging from 1 to 100 μm Concentration less than 10000 counts/ mL	樣品: 料液 100 ml (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 7 days If urgent: 6 days

Ø1: Sample type & quantity required: Sample fluid 100 ml



料液顆粒分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
純水顆粒計數 Particle count in pure water	監控純水中0.03, 0.1, 0.2 & 0.5μm的顆粒數量 Monitor the numbers of 0.03, 0.1, 0.2 and 0.5 μm particles in pure water	樣品: 料液 300 ml (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 8 days If urgent: 6 days

Ø1: Sample type & quantity required: Sample fluid 300 ml



料液顆粒分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
顆粒分佈 Particle distribution	物料中的5nm-6µm區間 的顆粒分佈 Particle distribution of 5nm-6µm in liquid	樣品: 料液 50 ml (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 8 days If urgent: 6 days

Ø1: Sample type & quantity required: Sample fluid 50 ml



料液顆粒分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
全通道顆料分析 Particle count of all channel	可分析超過1000萬顆/ml, 將 0.15-200µm 內的顆粒 精準讀數 Particle count ranging from 0.15 to 200 µm Concentration more than 10E+8 counts/ mL	不適用有機溶劑,只能做水性液體 not suitable for organic solvent, for water-based liquid only 樣品: 料液 100 ml (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 8 days If urgent: 6 days

Ø1: Sample type & quantity required: Sample fluid 100 ml



料液顆粒分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
氣體顆粒檢測 Particle count in gas	分析氣體裡的顆粒數(0.3、 0.5、1.0、3.0、5.0μm) Monitor the numbers of 0.3, 0.5, 1.0, 3.0 and 5.0 μm particles in gas	用於濾心下游監測 to detect particle conditions downstreams 樣品: 濾心 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 8 days If urgent: 6 days



料液顆粒分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
油液顆粒計數 Particle count in oil	NAS1638、ISO4406 汙染程 度等級 Determine the contamination classed according to NAS1638 and ISO4406	樣品: 料液 100 ml (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 8 days If urgent: 6 days

Ø1: Sample type & quantity required: Sample fluid 100 ml



Metal ion analysis

金屬離子分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
ICP-MS (ppt 級) ICP-MS (ppt level)	評估產品和原料中的金屬離子污染(ppt 級) Detect contamination of metal ion in products and raw material (ppt level)	只適用于高純度樣品 applicable for high-purity samples 樣品: 料液 50 ml (不可少於 20 ml) (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 8 days If urgent: 7 days If the sample need specific pretreatments, it will take more than 8 days

Ø1: Sample type & quantity required: Sample fluid 50 ml (20ml at least!)



Particle shedding analysis

雜質流出分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
濾心雜質流出分析 Filter particle shedding analysis	設備#1: 粒徑 0.1, 0.2, 0.3, 0.5 µm 監測 設備#2: 粒徑 0.04, 0.05, 0.1, 0.15 µm 監測 Equipment #1: Monitor the shedding condition of 0.1, 0.2, 0.3 and 0.5 µm particles Equipment #2: Monitor the shedding condition of 0.04, 0.05, 0.1 and 0.15 µm particles	適用於半導體級的高潔淨度濾心顆粒脫落 監測 Apply to particle shedding conditions of high-purity filters used in semiconductor industry 樣品: 濾心 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 8 days If urgent: 7 days



Extractables analysis

溶出物分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
NVR	水,IPA,丙酮等揮發性 基礎溶劑 Volatile solvents such as water, IPA and acetone	不含方案設計和驗證 Do not include the design and verification 樣品: 濾心 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 15 days If urgent: 10 days



Extractables analysis

溶出物分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
LC-UV(PDA)	PDA全波段UV掃描,最大可能地檢出各種有機溶出物, 析出物 scan PDA full-wave band with UV to detect organic extractables and leachables	不含方案設計和 驗證 Do not include the design and verification 樣品: 濾心 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 15 days If urgent: 10 days



Extractables analysis

溶出物分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
GC-MS	定性和部分定量分析,揮發性、 半揮發性溶出物/ 析出物 quality、partial quantify analysis of volatile and semi- volatiles extractables	不含方案設計 和驗證 Do not include the design and verification 樣品: 濾心 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 15 days If urgent: 10 days



過濾效率分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
ISO顆粒效率 ISO particle efficiency	1.0-100 μm particles	樣品: 濾心 1 pc 或片膜直徑 47mm 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 10 days If urgent: 8 days

Ø1: Sample type & quantity required: Filter sample x 1 pc or membrane disc od= 47mm x 1 pc



過濾效率分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
PSL-NTU整體效率 PSL-NTU particle efficiency	0.02-2 μm particles	樣品: 濾心 1 pc 或片膜直徑 47mm 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 10 days If urgent: 8 days

Ø1: Sample type & quantity required: Filter sample x 1 pc or membrane disc od= 47mm x 1 pc



過濾效率分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
CMP Slurry 顆粒效率 CMP slurry efficiency	CMP slurry >= 0.15 μm	樣品: 濾心 1 pc 或過濾前、後的 Slurry 料液 (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 10 days
				If urgent: 8 days

Ø1: Sample type & quantity required:
Filter sample x 1 pc or
Slurry samples before and after being filtered



過濾效率分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
PSL顆粒效率 PSL particle efficiency	0.05-0.5 μm particles	樣品: 濾心 1 pc 或片膜直徑 47mm 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 12 days If urgent: 10 days

Ø1: Sample type & quantity required: Filter sample x 1 pc or membrane disc od= 47mm x 1 pc



過濾效率分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
DOP氣體效率	> 99.99995% for 0.1	樣品: 濾心 1	Please consult	Days after receipt of
DOP gas efficiency	0.3um particles	pc (Ø1)	with the lab individually for	sample: 8 days



過濾效率分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
細菌挑戰 Bacteria challenge test	0.22μm-假單胞菌;0.45μm- 乳酸菌;1.2μm-酵母菌	標準條件 樣品: 濾心 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 20 days



膜材料分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
OEM##		1 4		
SEM結構 SEM structure	上游,下游,縱頗面 upstream, downstream and cross section	樣品: 濾心 1 pc 或片膜直徑 47mm 1 pc	Please consult with the lab individually for	Days after receipt of sample: 7 days

Ø1: Sample type & quantity required:

Filter sample x 1 pc or membrane disc od= 47mm x 1 pc



膜材料分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
氣泡點和流速 Bubble point value and flow rate	片膜水/ IPA泡點測試 Filter disc water/ IPA bubble point test	樣品: 濾心 1 pc 或片膜直徑 47mm 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 7 days If urgent: 6 days

Ø1: Sample type & quantity required: Filter sample x 1 pc or membrane disc od= 47mm x 1 pc



膜材料分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
強度 Tensile test	拉伸/剝離強度 Tensile strength and peel strength	樣品: 濾心 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 8 days If urgent: 6 days



膜材料分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
DSC	材質熔點分析 melting point analysis	樣品: 濾心 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 9 days If urgent: 7 days



膜材料分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
孔徑分佈 Pore size distribution	pore size range: 0.013- 500um	樣品: 濾心 1 pc 或片膜直徑	Please consult with the lab	Days after receipt of sample: 8 days
Pore size distribution		47mm 1 pc (Ø1)	individually for details	If urgent: 7 days

Ø1: Sample type & quantity required: Filter sample x 1 pc or membrane disc od= 47mm x 1 pc



Life time test

過濾壽命實驗

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
V-max	重要過濾方案的設計 important for filtration solution	基於料液,測試面積 47mm depend on liquid sample, disc area 47 mm 樣品: 濾心 1 pc 或片 膜直徑 47mm 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 12 days

Ø1: Sample type & quantity required: Filter sample x 1 pc or membrane disc od= 47mm x 1 pc



Chemical compatibility

化學相容性分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
片膜 Filter media	SEM,BP,強度,流速 SEM, Bubble point, strength and flow velocity	不含特殊溶劑費用 not include the cost of designated solvent 樣品: 濾心 1 pc 或 片膜直徑 47mm 2 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 13 days (Chemical resistance of 72 hours)

Ø1: Sample type & quantity required: Filter sample x 1 pc or membrane disc od= 47mm x 2 pc



Chemical compatibility

化學相容性分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
濾心 Filter cartridge	BP, SEM, 強度, 流速 SEM, Bubble point, strength and flow velocity	不含特殊溶劑費用 not include the cost of designated solvent 樣品: 濾心 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 13 days (Chemical resistance of 72 hours)



流速分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
氣體流速 Gas flow rate		樣品: 濾心 1 pc 或 片膜直徑 47mm 1 pc (Ø1)	Please consult with the lab individually for	Days after receipt of sample: 7 days
Cas now rate		ρο (Θ1)	details	If urgent: 6 days

Ø1: Sample type & quantity required:

Filter sample x 1 pc or membrane disc od= 47mm x 1 pc



流速分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
液體流速 Liquid flow rate	標準液體水 standard liquid: water	樣品: 濾心 1 pc 或片膜直徑 47mm 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 7 days If urgent: 6 days

Ø1: Sample type & quantity required:

Filter sample x 1 pc or membrane disc od= 47mm x 1 pc



流速分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
液體流速 Liquid flow rate	製程液體,高黏度液體 process liquid and high- viscosity liquid water	客戶提供液體 liquid provided by customer 樣品: 濾心 1 pc 或 片膜直徑 47mm 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 10 days If urgent: 8 days

Ø1: Sample type & quantity required: Filter sample x 1 pc or membrane disc od= 47mm x 1 pc



流速分析

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
膜片Gurley Gurley Densometers	test area: 1 sq-inch, 0.1 sq-inch	樣品: 片膜直徑 47mm 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 7 days If urgent: 6 days

Ø1: Sample type & quantity required: Membrane disc od= 47mm x 1 pc



Ageing test 耐老化實驗

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
雙85 測試	85℃,85% 濕度 85℃,85% RH	1000 hrs	Please consult with the lab	Days after receipt of sample: Upon time
Double 85 tests		樣品: 濾膜材料 (Ø1)	individually for details	period being requested

Ø1: Sample type & quantity required: Filter media



Steam in place test

耐蒸汽實驗

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
121-134度	in line	< 30 cycles 樣品: 濾心 1 pc (Ø1)	Please consult with the lab individually for details	Days after receipt of sample: 17 days If urgent: 15 days



Integrity test 完整性檢測試

專項	檢測服務概述	備註	設備	報告交期
Specific analysis	Brief description	Notification	Equipment	Lead time
非破壞性檢測 None-destructive integrity test	親水膜濾心: 氣泡點測試,擴 散流測試 Hydrophilic filter: bubble point test, diffusional flow test 疏水膜濾心: 氣泡點測試,水 浸入測試 Hydrophobic filter: bubble point test, water intrusion test 深層濾心: IPA逆向測試 Depth filter: reverse IPA BP test 濾心乙醇逆向測試 Filter: reverse alcohol BP test	找出測試失敗原因 是關鍵 the key point is to find out why a filter fails the integrity test 樣品: 濾心 1 pc (Ø1) Sample type & quantity required: Filter sample x 1 pc	Please consult with the lab individually for details	Days after receipt of sample: 7 days If urgent: 6 days



Categories of analyses -- Filter

進行分析的問題歸類 - 濾心

問題	範疇	專項	檢測概述
Problems	Category	Specific Analysis	Brief Description
我覺得過濾效果不佳, 是不是濾心精度不足?			
有沒有更適合我使用 的濾心材質?			
這個濾膜的實際精度 如何? 有沒有膜孔分 佈圖?			
這個濾心的實際過濾 效能如何?			
我目前用的濾心是否 有溶出物質,造成下 游汙染?			



Categories of analyses -- Filter

進行分析的問題歸類 - 濾心

問題	範疇	專項	檢測概述
Problems	Category	Specific Analysis	Brief Description
我希望延長濾心壽命。			
我要流量更大的濾心 款式。			
這款濾心的抗化性到 底有沒有問題?			
在我的特用化學品中, 濾心的溶出物質情況 如何?			
這支用過的濾心,有 沒有破膜?			



Categories of analyses -- Filter

進行分析的問題歸類 - 濾心

問題	範疇	專項	檢測概述
Problems	Category	Specific Analysis	Brief Description
我目前用的濾心實際 金屬離子析出的程度 如何?			



Categories of analyses

進行分析的問題歸類

問題	範疇	專項	檢測概述
Problems	Category	Specific Analysis	Brief Description
我想知道這藥液中的 雜質種類與元素組成。			
我想知道這藥液中的 雜質數量,型態及大 小。			
我想知道這藥液中的 各金屬離子含量。			