

**DEPARTMENT OF CHEMICAL & PETROLEUM ENGINEERING**  
**Research Instrumentation & Technical Support (RITS)**

Instrument fee schedule, December 2021

To access these instruments contact:

RITS Laboratory Technician [cpe.rits@ucalgary.ca](mailto:cpe.rits@ucalgary.ca)

INSTRUMENT	APPLICATION	UofC		External	
		Access charge \$/hr	Tech. time \$/hr	Access charge \$/hr	Tech. time \$/hr
<p align="center">Benchtop  <b>Scanning Electron Microscope</b>                      with EDS                      Model: <a href="#">Phenom XPro</a></p> <p align="center"><b>Automatic Carbon coater</b>                      for non-conducting samples</p>	<p align="center">Imaging up to 130,000x,                      ca. 50 nm resolution, EDS for                      elemental analysis. Easy to                      use, rapid screening of                      samples.</p>	50	45	100	90
<p align="center">Laser Diffraction  <b>Particle Size Analyzer</b>                      Models:  <a href="#">Beckman Coulter LS13320</a>  <a href="#">Malvern Mastersizer 3000</a></p>	<p align="center">Particle size distribution for                      solids dispersed in liquid,                      size range 0.02 µm to 3000                      µm</p>	15	45	30	90
<p align="center">Dynamic Light scattering  <b>Particle size and zeta potential</b>                      Model: <a href="#">Malvern Zetasizer                      Nano ZS</a></p>	<p align="center">Particle / droplet size                      distribution 0.3 nm to 5 µm                      Zeta potential of particles,                      droplets and surfaces.                      Includes auto-titrator.</p>	15	45	30	90
<p align="center">Inductively Coupled Plasma                      Optical Emission Spectrometer                      (ICP-OES)                      Model: Thermo Scientific  <a href="#">iCAP 7200</a></p>	<p align="center">Trace metal analysis                      Detection limit 1-5 ppb                      depending on the element</p> <p align="center">Cost for sample digestion                      will be additional</p>	20	45	40	90
<p align="center">High Performance Liquid                      Chromatography (HPLC)                      Model: <a href="#">Agilent 1260 system</a></p>	<p align="center">Liquid analysis, detectors                      include diode array (DAD),                      refractive index (RID) and                      Fluorescence (FD)</p>	15	45	30	90
<p align="center">High Capacity <b>Centrifuge</b>                      Model: <a href="#">Beckman Coulter J26S-XP</a></p>	<p align="center">Separation of solids                      Up to 6L volume, 26,000 rpm</p>	10	45	20	90

or \$30 per sample  
 + \$10 per element  
 min. 5 sample

(Continued)

High Performance Liquid Chromatography ( <b>HPLC</b> ) Model: <a href="#">Agilent 1260 system</a>	Liquid analysis, detectors include diode array (DAD), refractive index (RID) and Fluorescence (FD)	15	45	30	90
High Capacity <b>Centrifuge</b> Model: <a href="#">Beckman Coulter J26S-XP</a>	Separation of solids Up to 6L volume, 26,000 rpm	10	45	20	90
<b>TGA / DSC 3+</b> Model: <a href="#">Mettler Toledo</a>	Wide variety of sample range up to 1100°C	25	45	50	90
<b>UV- VIS Spectroscopy</b> <a href="#">Shimadzu UV-Vis 2600</a>	Single Monochromator 190-900 nm ±0.1 nm resolution	10	45	20	90
Total Organic Carbon ( <b>TOC</b> ) analyser Model: Shimadzu TOC-V <sub>E</sub>	Organic and inorganic carbon concentrations in water	15	45	30	90

**Notes:** Minimum charge 30 min.

Some basic instrument consumables will be supplied.

Specialist consumables (e.g. new ICP standards) may be charged or user supplied.

Users will be responsible for the disposal of waste chemicals, including samples after analysis.