Elemental Analysis Service Center

The Elemental Analysis Service Center in the Department of Chemistry offers analysis services to support the research and education missions of East Carolina University and the region. Services are offered using the Agilent 7900 Inductively-coupled Plasma Mass Spectrometer (ICP-MS) housed in the Science and Technology Building, Room 347. This instrument can be used to identify and/or quantify most elements in sample solutions < 1 part-per-billion. A unique capability of this instrument is the ability to analyze solutions with up to 25% total dissolved solids (~10x concentrated sea water) directly using the ultra-high matrix introduction system (UHMI). Additional details of the instrument can found at the manufacturer’s link. http://www.agilent.com/en-us/products/icp-ms/icp-ms-systems/7900-icp-ms. (select United States when prompted to reach the link)

Fee Structure

User fees are designed to recover operation costs. Rates are structured hourly on actual instrument and staff time utilized as well as per sample fees for use of lab supplies and equipment. User fees are structured to allow trained users to reduce costs by utilizing Do-It-Yourself options. Training fees are also provided. Rates have been approved by the University.

Table 1. Fee Structure for ECU Researchers

<table>
<thead>
<tr>
<th>Use Type</th>
<th>Rate</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument Time</td>
<td>$51.08</td>
<td>Per hour</td>
</tr>
<tr>
<td>Laboratory Director Time</td>
<td>$66.14</td>
<td>Per hour</td>
</tr>
<tr>
<td>Use Center Materials</td>
<td>$4.96</td>
<td>Per sample</td>
</tr>
<tr>
<td>Microwave or Hotblock digestion</td>
<td>$12.51</td>
<td>Per sample</td>
</tr>
<tr>
<td>DIY Training (Basics)</td>
<td>$183.44</td>
<td>(Director 2 hours, ICPMS 1 hour)</td>
</tr>
<tr>
<td>DIY Training (Microwave)</td>
<td>$99.27</td>
<td>(Director 1.5 hours)</td>
</tr>
</tbody>
</table>

- **Instrument Time** includes start-up to the end of the analysis.
  - Instrument time varies depending on the elements, replicates, number of samples, and washout time required between samples
  - 2-3 hours are typical total times for warm-up, calibration, and analysis
  - Warm up and tune ~45 minutes, Calibration and QC ~ 25 minutes, ~3 minutes per sample
- **Laboratory Director Time** includes active time spent on the project such as method development, sample preparation, instrument set-up, data analysis, reporting, publication support, and meetings as applicable.
  - No charge for initial consultations
- **Use Center Materials** includes use of available calibration standard solutions, internal standard solutions, sample tubes, autosampler tubes, pipets, acids etc. designed for trace metal analysis.
- **Microwave or Hotblock Digestion** includes use of the pressurized digestion bombs, microwave, and/or hotblock for sample preparation.
Additional Notes

1. For quantitative analysis, the following QC is recommended:
   - Calibration Blank
   - Three to five point calibration (at least)
   - Extra low level accuracy check (LOD or LOQ -if low results desired)
   - Second source QC standard(s)
   - Method Blanks (1 per ~12 samples)
   - Spiked Samples (1 per unique matrix - varies)
   - Calibration verification blanks and standards (2 per 5-10 measurements)

2. Assumes samples are presented to the instrument in a 1-5% nitric acid solution.

3. Approximately 5 mL of final sample solution is adequate for analysis. More is recommended.

4. All projects must be discussed with the Director before receipt of samples. Refer to the Analysis Request form and Technical Worksheet.

5. Researchers desiring a cost estimate for proposal submission should contact the Director at least 2 weeks before desired submission. Method development for your sample type may require significant Director consulting charges and be best handled by including Director salary in the proposal in addition to sample fees.

Contact

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Additional Services can be found at http://www.ecu.edu/cs-cas/chem/Pharm-Center.cfm