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| **HOW TO GUIDE** |
| **Elemental analysis - Liquid samples** |
| **Sample storage and submission dates*** Both request form (via email as a word document to alab.chemeng@uct.ac.za ) and samples should be submitted on:

|  |  |
| --- | --- |
| **Monday** | **Friday** |
| 10:00 - 11:00  |

 * When submitting liquid sample/s it is recommended to use plastic ICP-type vials. If you do not have the Analytical Lab can supply.

**Minimum volume**

|  |  |
| --- | --- |
| **No. of elements for analysis** | **Minimum vol. required (ml)** |
| 1 | 10 |
| 2 | 15 |
| >2 | 30 |
| >5 | 50 |

**Which elements can be analysed on ICP-OES and MP-AES?**

|  |  |  |
| --- | --- | --- |
| **H** |  | **He** |
| **Li** | **Be** |  | **B** | **C** | **N** | **O** | **F** | **Ne** |
| **Na** | **Mg** | **Al** | **Si** | **P** | **S** | **Cl** | **Ar** |
| **K** | **Ca** | **Sc** | **Ti** | **V** | **Cr** | **Mn** | **Fe** | **Co** | **Ni** | **Cu** | **Zn** | **Ga** | **Ge** | **As** | **Se** | **Br** | **Kr** |
| **Rb** | **Sr** | **Y** | **Zr** | **Nb** | **Mo** | **Tc** | **Ru** | **Rh** | **Pd** | **Ag** | **Cd** | **In** | **Sn** | **Sb** | **Te** | **I** | **Xe** |
| **Cs** | **Ba** | **La** | **Hf** | **Ta** | **W** | **Re** | **Os** | **Ir** | **Pt** | **Au** | **Hg** | **Tl** | **Pb** | **Bi** | **Po** | **At** | **Rn** |
| **Fr** | **Ra** | **Ac** | **Rf** | **Db** | **Sg** | **Bh** | **Hs** | **Mt** | **Ds** | **Rg** | **Cn** | **Uut** | **Fl** | **Uup** | **Lv** | **Uus** | **Uuo** |
|  | **Ce** | **Pr** | **Nd** | **Pm** | **Sm** | **Eu** | **Gd** | **Tb** | **Dy** | **Ho** | **Er** | **Tm** | **Yb** | **Lu** |  |
| **Th** | **Pa** | **U** | **Np** | **Pu** | **Am** | **Cm** | **Bk** | **Cf** | **Es** | **Fm** | **Md** | **No** | **Lr** |
|

**Estimated turnaround time for analysis**

|  |  |  |
| --- | --- | --- |
| **Turnaround option** | **Estimated time** | **Max number per week** |
| Normal1 | 2–3 weeks | N/A |
| Fast track2 | 5–7 working days | N/A |
| ASAP3 | * 1. working days
 | 5 samples with 1 – 3 elements |
| UGP4 | Highest priority | - |

1. Normal turnaround is often shorter than 2 – 3 weeks. It accounts for a queue and/or method development for new samples. A large batch of samples submitted might take longer than 2 – 3 weeks.
2. Recommended for samples that we have analysed previously. A large batch of samples submitted might take longer than 5 – 7 working days.
3. ASAP turnaround is only recommended for similar samples that we have analysed previously. We should have an established working method already.
4. Reserved for 4th year UCT undergraduate students. Undergrad project samples given highest priority over other samples.
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| **SECTION A: TO BE COMPLETED BY CUSTOMER** |
| **Customer Details** |
| Name:  |
| Date sample/s + request form submitted: |
| Research group/Department: | Cost Centre/ Fund number: |
| E-mail: | Cell No: |
| Supervisor name: |

|  |
| --- |
| **Instrument/Type of Analysis**  |
|  | **Type of samples** | **Recommended no. of elements** | **Tick to indicate*🗹*** |
| ICP-OES | Catalyst, Brine, Mine water (etc) | $\geqq $3 |  |
| MP-AES | Catalyst, Brine, Mine water (etc) | 1-5 |  |
| Turnaround time: (***Tick to indicate🗹 )***Normal Fast Track ASAP UGP  | Supervisor approval for Fast Track /ASAP: Yes ***(See page 1 for more details*)** |

|  |
| --- |
| **Sample Information** |
| Number of liquid samples: | Number of elements to be analyzed: |
| Type of sample - ***Tick to indicate🗹***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mine water | Water | Brines | leachates | Precursor solutions | Ore |
|  |  |  |  |  |  |

If other, please specify:  |

|  |  |
| --- | --- |
| Elements | Concentration (ppm) |
|  |  |
|  |  |
|  |  |
|  |  |

Please specify which elements to be analyzed:What other elements are in your samples? (**Not for analysis**)

|  |  |
| --- | --- |
| Room temp. | Fridge |
|  |  |

Storage condition: |
|

|  |  |  |
| --- | --- | --- |
| Does your sample contain? | Acid | Base |
|  |  |

If yes, please specify the type of acid or base and its concentration:  |
|

|  |  |  |
| --- | --- | --- |
| Does it contain organic material? | Yes | No |
|  |  |

If yes, please specify: | How do you wish for us to report your results **(*Tick to indicate*** 🗹***)?***

|  |  |  |  |
| --- | --- | --- | --- |
| ppm | ppb | mg/L | µg/L |
|  |  |  |  |

 |
| **Does your sample contain anything else?**  |
| **Have you declared all information about your sample? Yes or No**  |

|  |
| --- |
| **SECTION B: TO BE COMPLETED BY ANALYST/S** |
| **Start and Completion of Analysis**  |
| Analysis request number: **RN2024-L** |
| Request number assigned by: |
| Analyst/s assigned to task: |
| Date sample/s submitted: | Date analysis started: |
| Date request form submitted:  | Date analysis completed:  |
| Date request number sent:  | Date report /results sent:  |

|  |
| --- |
| **Notes on Sample Preparation and Analysis** |
| **Calibration range and standards used:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Element | Wavelength (nm) | Calibration range(mg/L) | R2 | Check standard(mg/L) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**File Name/s:**

|  |  |
| --- | --- |
| Sample Name | Dilution Factor |
|  | Al | Mg | Na |
|  |  |  |  |

**Sample preparation**:

|  |  |
| --- | --- |
| Yes | No |
|  |  |

Minimum dilution **(*Tick to indicate*** *🗹***):** If yes, what is the minimum dilution factor?

|  |  |  |  |
| --- | --- | --- | --- |
| TDS | Precipitation | Volume | Other |
|  |  |  |  |

Reason: If other, please specify.

|  |  |  |  |
| --- | --- | --- | --- |
| Element | Wavelength (nm) | interferant | Wavelength(nm) |
|  |  |  |  |

 **Interferences:** Paste image: **Sample difficulties/ observations:** |