

General Protocols for ICP Sample Preparation

- **Nitric acid is the best choice of acid matrix for ICP analysis typically between 1% w/v and 3% w/v.**
- **The quantitation ranges for cost elements are sub-ppb to 1ppm level for ICP-MS and 100ppb to 100 ppm for ICP-OES, respectively. Dilutions will have to be made to bring more concentrated analytes into the specified range.**
- **The samples are usually made up in 2% w/v Nitric Acid (TraceMetal Grade from Fisher Sci, Cat#A509-500) prepared with 18 M Ohm D.I Water.** If 1 or 2 mls of sample are to be diluted then the stock solution of 2 % w/v Nitric Acid may be used. If a larger volume of sample is to be prepared then the quantity of concentrated Nitric Acid required to provide a 2% w/v Nitric Acid concentration in the final solution needs to be calculated.
- **Total dissolved solids (TDS) must not exceed 0.1 wt %.**(e.g. 0.1 g per 100 ml of solution). There must be no suspended solids (if in doubt filter a portion with 0.2 micron cellulose nitrate syringe filter).
- **The minimum sample volume is 5mls,** but if quantitation procedure uses an internal standard there are difficulties adding an internal standard accurately and reproducibly to such a small volume. Ideally final solution is 10ml in a 15ml centrifuge vial.