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Brief

The prepFAST offline autodilution system provides FAST automated syringe based sample preparation over a wide range (< 10 to > 100x) of dilution factors. Simultaneously mixing and diluting samples eliminates any manual/mechanical mixing step.

Features:

- Fully automated
- Syringe-based sample handling
 - ✓ Sample never enters the syringe barrel
 - ✓ Automated diluent addition and mixing
 - ✓ Automated internal standard addition (optional)
- Syringe delivery of diluent
- Intuitive software
- Fluoropolymer flow path
- Probe rinse between every sample
- Low carryover
- Compatible with full range of ESI autosamplers

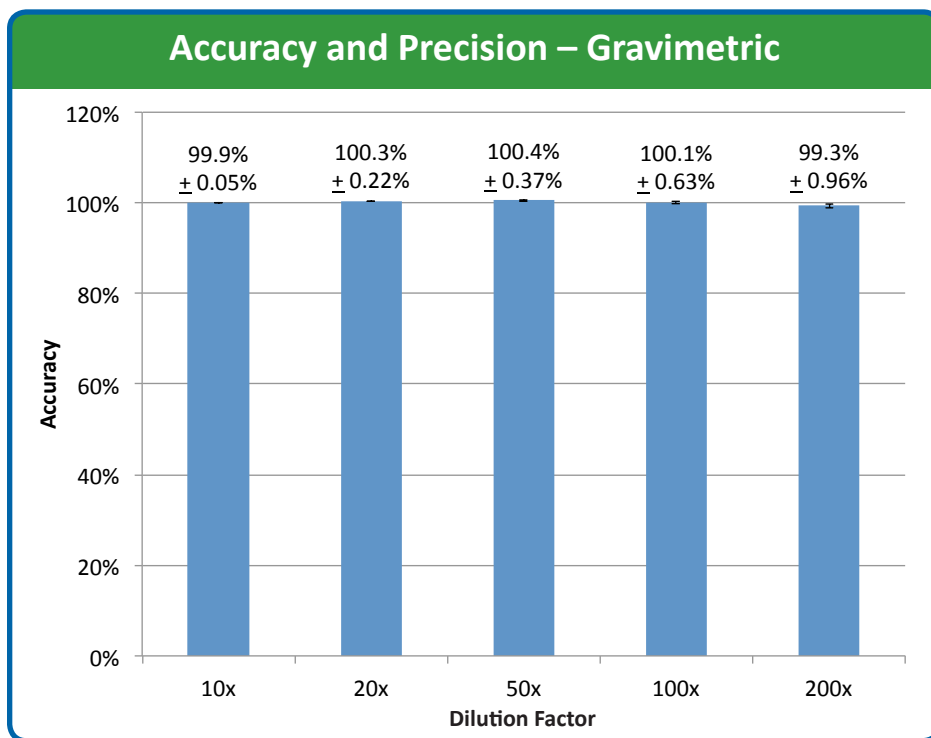


Figure 1. Accuracy and precision gravimetrically determined at dilution factors of 10, 20, 50, 100 and 200 fold. Precision and accuracy at DF below 50 are similar to values quoted for manual pipettes and significantly better than ICP and ICPMS analytical precision.

Figure 2. Schematic illustration and configuration of prepFAST offline autodilution system.

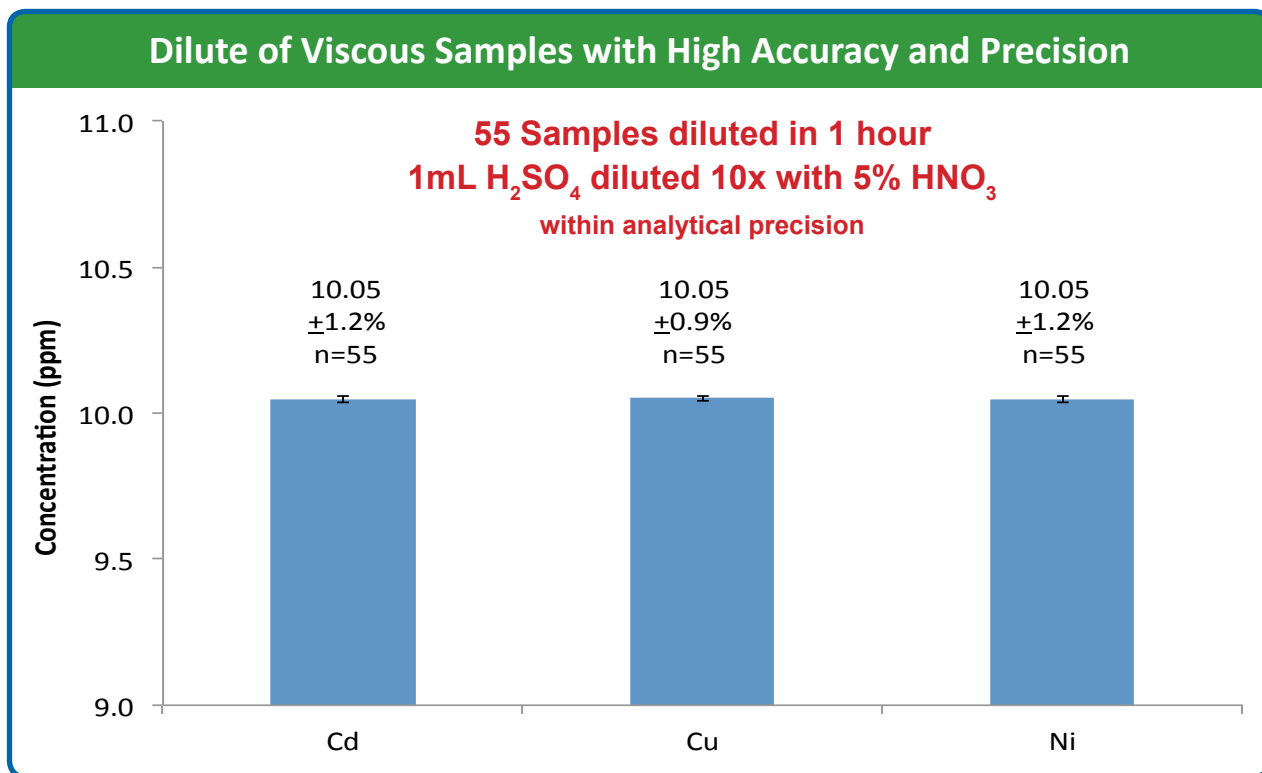
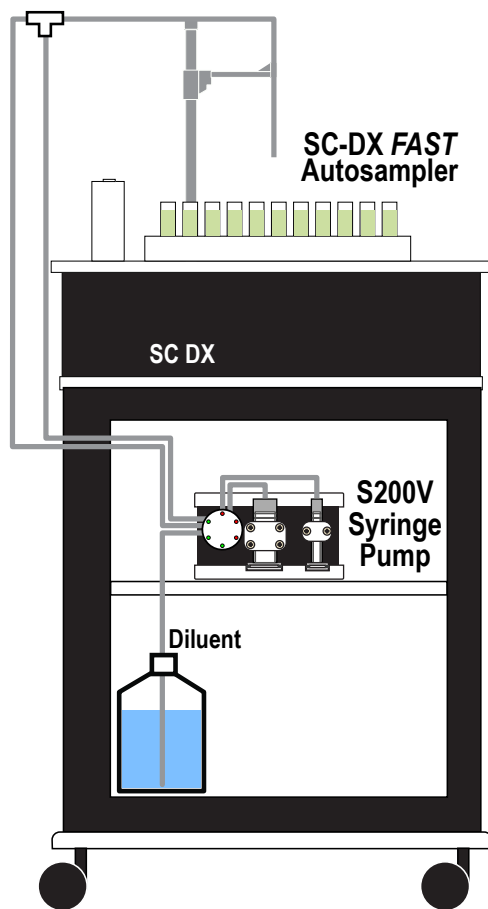


Figure 3. Concentrated H₂SO₄ (98%) is spiked with Cu, Ni and Cd and then autodiluted (10x) 55 times for analysis by ICP. Dilution results are well within analytical accuracy and precision and illustrate the capability to rapidly (~ 1min/sample) autodilute viscous solutions.

Precise and Accurate Autodilution

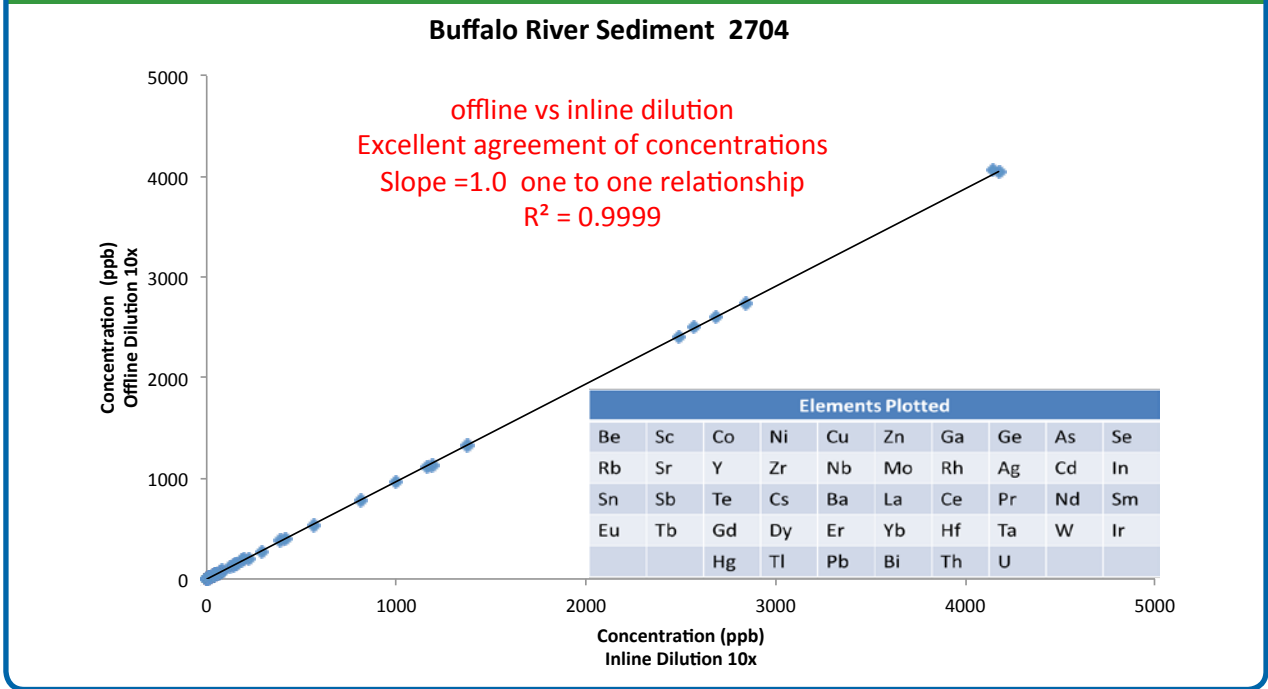


Figure 4. NIST 2704 Buffalo River Sediment is analyzed by ICPMS using both prepFAST inline and prepFAST offline autodilution systems. Offline vs inline dilution results are plotted for the full suite of elements in a 4-acid digestion geochemical package. A near perfect one to one relationship with a strong correlation coefficient indicates excellent precision and accuracy for both autodilution systems.

Accurate Autodilution of Geochemical Samples

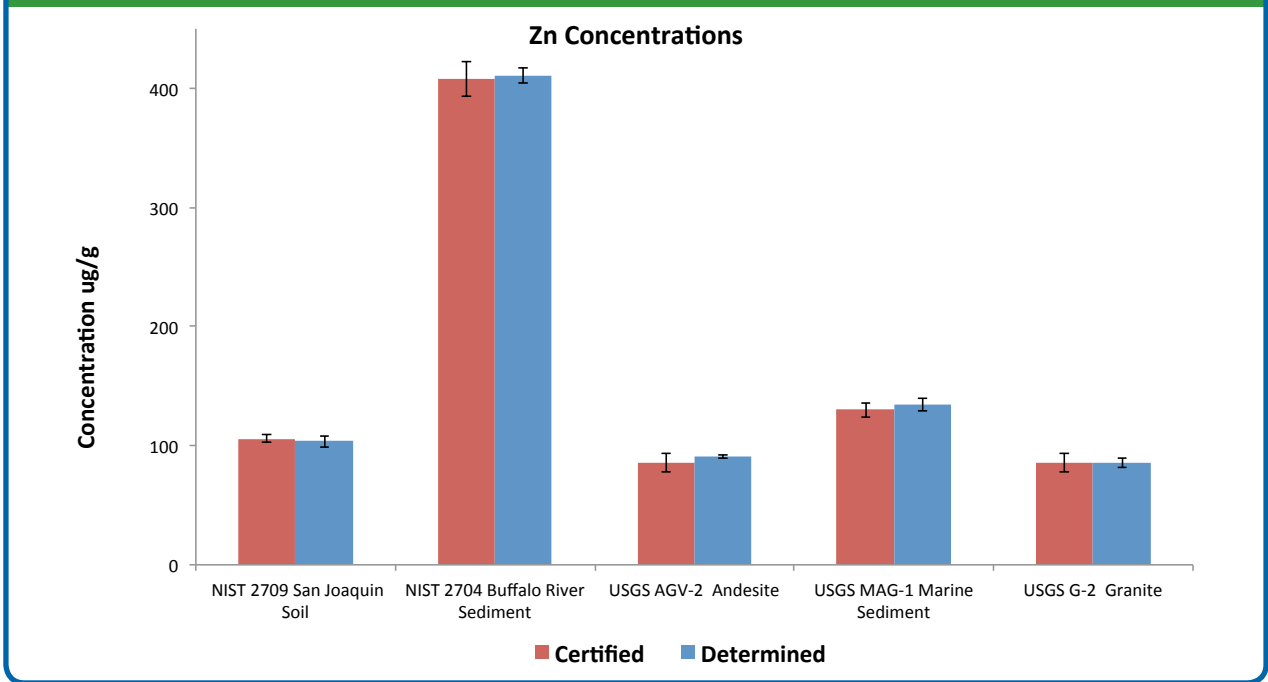


Figure 5. A standard 4-acid geochemical digestion protocol for soils, sediments, rocks and vegetation is used to digest a selection of certified reference materials (CRM). After reconstitution the normal manual 10x dilution step is eliminated and samples are setup on the prepFAST offline autodilutor (10x). Six replicate dilutions of each CRM are performed and analyzed by ICPMS. Comparing Zn to certified values for all CRMs indicates excellent agreement within procedural (digestion/analytical) precision. These data illustrate accurate autodilution for a range of geochemical sample types.

Benefits:

- Syringe-driven autodilution
 - ✓ Fast
 - ✓ Wide range of dilution factors (< 10 to > 100x)
 - ✓ Accurate (< 0.3%)
 - ✓ Precise (< 0.3%)
 - ✓ Clean (low blanks and LODs)
 - ✓ Low carryover
- Reduces time and cost of sample preparation
- Optional enclosure
- Optional ULPA filtered environment



SC-2 DX prepFAST offline system

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