

Expression of Interest for the procurement of a high-pressure acid digestion system
June 5, 2020

The Centre for Earth Sciences, Indian Institute of Science would like to procure a high-pressure acid digestion system with the **following technical specifications**:

The high-pressure acid digestion system should be suited for digestion of different types of sample matrices that include silicates, oxides, carbonates and organics. The digestion system should be able to digest all types of meteorites and their components, terrestrial rocks and minerals (e.g., chromite) and hydrocarbons. It should allow quantitative dissolution of platinum group elements (PGE) in rocks, dissolution of Hg, As, Se, Si in natural samples, as well as safe digestion of difficult organic samples, e.g., hydrocarbons. The instrument should be able to digest both large amounts (> 1 gram) as well as small amounts (1-10 milligram) of powdered silicate rock samples without any loss of analytes. Options for different sizes of digestion vessels should be available and the instrument should be able to digest multiple samples simultaneously without any cross contamination.

The instrument should allow total dissolution of samples in high temperatures and pressures and these parameters (P, T) must be held constant over long acid digestion times (> 8 hours) with no deformation of digestion vessels or lids. Digestion will be conducted using corrosive reagents like concentrated hydrochloric, nitric and hydrofluoric acids. The digestion vessels should be designed to handle such reagents and made of high-tensile, reusable, corrosion resistant material that correspond to international norms. The instrument should be able to reach 320 °C and sustain it at this temperature for more than 8 hours at operation pressures greater than 120 bars. The instrument should have accurate temperature and pressure control and should generate the same reaction condition for each sample, independent of the nature of the sample, reagents and reaction vessel size.

The vessels should have a robust construction with multiple pressure relief devices and security features to minimize operation errors. It should allow rapid cooling (< 45 minutes) after sample digestion and be delivered with comprehensive test certificates.

Interested vendors should contact the Office, Centre for Earth Sciences, Indian Institute of Science, Bangalore 560012 by email at office.ceas@iisc.ac.in **on or before June 22, 2020**. These vendors will be asked to make technical presentations and subsequently, short-listed vendors will be invited to submit their commercial offers.