3. Technical Specifications

"Summary of Technical Specifications"

Item No	Name of Goods or Related Service	Technical Specifications and Standards
1.	**Supply of Two-Channel Hydride reversibility gas Absorption/ desorption, kinetics measurement system (Physical property measurements system for hydrides)**	**This system should be focussed on evaluation of reversibility of absorption/desorption of hydrogen in/from hydrides. For this the pressure in release mode should be < 1 atm, (during release mode arrangements for high pressure gas quenching of hydrides), absorption/desorption cycling properties, Kinetics, PCI characteristics; Pressure-Temperature cycling, Surface area and Cycle life and Auto-calibration. Gases to be investigated: Hydrogen, Nitrogen and CO_2. Materials to be investigated include: Metals, Alloys, Intermetallics, Metal Organic Frameworks, Amides, Imides, Carbon nanotubes, Graphene, Zeolites, Nanocrystalline materials, etc. (the instrument should be capable of measuring the above properties for material with using density input).** Channel 1 : 0 to ~ 150 bar Standard Chamber : 2 ml holder with K type thermo couple, temperature controller, furnace having range from 23^0C to 500^0C, Accuracy of temperature : $\pm 0.1^0$C. Channel 2 : 0 to ~ 120 bar Standard Chamber : 0.5 to 2ml with K type thermocouple, Temperature controller, furnace (having range from 23^0C to 500^0C) or cryostat and heating tape Both the channel should include safety valve in case over pressure is supplied to the channels. The sample chambers supplied with above instrument should be such that we can load air sensitive sample and seal them inside a glove box. Afterwards on attaching the sample chamber into the instrument's evacuation (or flushing with an inert gas) can be done by opening the sample chamber valve. The 2 channel should have interchangeable sample chamber. The instrument should be supplied with a software capable of plotting hydrogen storage capacity vs temperature, hydrogen storage capacity vs pressure, hydrogen storage capacity vs time. The software should also indicate the position and operation of the valve inside the instrument. The instruments should be equipped with vacuum system capable of creating a vacuum of 10^{-6} mbar. Some extra transducers will also be required.