Technical Specifications of Gas Analyser

General

Instrument for measurement of adsorption characteristic of various gases on solid material. Capable of measuring wide range of adsorption isotherm for the estimation of sorption/physisorption, chemisorptions characteristics, surface area, pore size distribution micropore size distribution analysis by using gas adsorption.

Technical

- Capability of carrying out physisorption for various gases (CH_4, Acetylene, NH3, CO, H_2, He, O_2 etc), should measure adsorption/desorption isotherm, surface area (Langmuir, BET), pore size, pore volume and micro pore distribution. At least two sample simultaneous measurement.
- Oil free vacuum system for both analysis and degassing with cooling assessable (Liq. N_2).
- Surface area measurement of range 0.0005 m^2/g to known upper limit, pore diameter in range of 3.5-5000 angstroms and micropore volume detectable even with 0.0001cc/g.
- Analysis station with dedicated 1000 Torr, 10 Torr and 1 Torr transducer for measuring equilibrium pressures on sample station in the range of 10^{-7} to 0.995 relative pressure, using nitrogen gas as adsorbate, at Liquid nitrogen temperature.
- System manifold should be temperature monitored and designed with corrosive resistant material and should have with option vapor adsorption atleast at one port.
- Pressure transducers should have high resolution and accuracy with high stability.
- RTD sensor to detect coolant level with appropriate feedback electronics to an automatic dewar elevator to maintain the coolant level with +/- 0.5 mm. Dewar flask for liquid nitrogen with offer.
- Degas station with heating mantles to permit a maximum degas temperature of 300 °C.
- An ultimate free degas vacuum of 3.75×10^{-10} to ensure degassing of samples which cannot be heated to temperature greater than 75 °C during degassing.
- The system should have features for automated real time free space measurement.
- Isothermal condition during the sample analysis.
- Certified reference standards to be supplied for making adsorption studies.

PC interface, Data analysis and Software

- Complete instrument operation and data measurement to be handled by windows based software.
- Calibration routines to be controlled by software. Features for creation of methods for measuring the adsorption/desorption isotherms.
- Software should have built in features for automatic start up and shut down procedure, real time display of the sample analysis progress, data handling features like user defined report generation, data/figures export to spreadsheets, offline data processing etc.

Accessories

- Computer with high configuration, highest possible memory, data storage, processor, etc and 50 liter liquid Nitrogen container.

Warranty and Consumables

- With three years consumable and five years instrumental warranty.
- 10 years spares support.

Training

- Four sessions of training to students and faculty within one year of installation.

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