INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION

Powai, Mumbai 400076.

Ref No. 1000058812 **(Rfx No.6100003218)**

Technical Specifications: MULTIPOINT BET SURFACE AREA AND PORE CHARACTERISTICS ANALYSER (Qty- 1)

Sr. No	Item Description	Detailed Technical Specification	Technical Compliance (Yes / No)	Additional Information (if any)
01	MUTLIPOINT BET SURFACE AREA AND PORE CHARACTERISTICS ANALYSER	**Basic Requirements:** 1. Require a fully automated Instrument for BET Surface Area, Pore characteristics analysis. It should be PC controlled with software. 2. Measurement principle should be volumetric for Surface area, pore characteristics, STSA, adsorption isotherm, desorption isotherm etc. At-least 2 or more stations for simultaneous analysis shall be available and at-least 4 or more stations shall be available for sample preparation simultaneously. Both analysis and degassing or sample preparation shall be simultaneous. 3. Shall perform fully automated multipoint BET analysis in forty minutes or less. 4. Application is environmental samples like catalysts, powders can be made of carbon etc 5. Relative Pressure range: 10^{-4} to 0.999 or better with N_2 at 77 K		

		6. Pressure transducers: at-least 1000 torr or better 7. Independent P_o station: Yes, or equivalent 8. Sample Preparation: Degassing unit with 4 sample at-least to be processed simultaneously. Both vacuum degassing and flow degassing be allowed. 9. Minimum surface area: 0.05m^2/g or even lower with N_2 at 77 K. Surface area reference material to be supplied along with instrument. 10. Surface Area Reproducibility: 2% or better 11. Pressure measurement Accuracy: 0.15% or better 12. Pressure Resolution: Relative 1.5*10^{-7} or absolute 1.2*10^{-4} Torr or better 13. Pore Size Range: 0.7nm-500nm or better 14. Minimum Pore Volume: 10^{-4} cm^3 /g or lower 15. Dewar flask Capacity: Cryogenic Dewar Flask with at-least 2L capacity with Liquid N_2 holding time of 40 hours or more 16. Degassing ramp control shall be programmable 17. Degassing: To remove pre-adsorbed gases and moisture. Safety features for overheating and user safety at least. 18. Degas temperature range: Room Temperature to 400 °C or better. 19. Adsorbates: Can be N_2, Ar and other		

		non-corrosive gases or equivalent 20. Appropriate installations of gas lines and gas control panel to be provided. Pressure regulator and all necessary fittings to be provided. Gas cylinder for N_2 and Argon or Helium to be provided, one each. Any other gases to be used for any calibration purposes or any other operational use to be provided, one cylinder for each gas and all fittings. 21. All required accessories and consumables to be provided including any filters for sample tubes to prevent particles from sample entry to avoid contamination and filters to prevent sample to air exposure. Sample cells at-least 35 and corresponding accessories or equivalent. 22. Working temperature range and humidity is 15-35 ˚C, 20-80% or better 23. Software to be provided along with training and manuals. Also provide free software upgrade for at-least 5 years 24. PC: As per requirement of instrument with latest window and software. Processor i7 or better. 25. The entire system should be installed and commissioned at IIT Bombay. 26. Any additional requirements should be mentioned and provided including consumables, if any. 27. After successful installation of the system and its peripherals, selected scientific and technical personnel from IIT Bombay should be provided with hands-on and in-depth training on the operation, maintenance and application of the instrument by OEM engineer(s).		

Other Terms and Conditions:

1. All the system components supplied, should have warranty for three years from date of installations including all labor cost.
2. Quote for annual maintenance contract on a regular basis after the warranty period shall be provided.
3. System performance should be demonstrated with necessary standards and calibration kits which will be provided by the vendor as part of standard delivery.
4. Warranty should include preventive maintenance kit.
5. No conditional warranty will be accepted.
6. On-site training of staff and students (at least twice in a year) during the first 3 years of warranty.
7. Good technical support should be provided after the installation of the instrument and the service engineer should be able to attend unlimited breakdown calls and should visit the installation site within 24 hours without fail.
8. Training on troubleshooting the issues associated with instrumentation or application should be provided free of cost whenever required by the user.
9. Manufacturer should provide the service support details in Mumbai
10. Details of the service engineers and application specialists should be provided along with their experience on these kinds of systems.
11. Details of the users (name, phone number and email ID) in India for the quoted instrument in the bid should be provided.
12. Instrument performance, quality of service and application support certificates from at least three existing users should be provided from CFTI or IIT
13. Evaluation will be done on the basis of technical specifications as per our tender notice.
14. Financial bids will be open only for those, who meets all technical specification.
15. Payment terms & condition is 100% after installation and training
16. Validity of quotation should be at least for 180 days.
17. The delivery period should be specifically stated. Earlier delivery may be preferred.
18. We may provide unknown samples to vendors for analysis on quoted models to verify their claims on technical specifications and reserve the rights to reject any or all quotations based on results