

NATIONAL CENTRE OF EXCELLENCE IN ANALYTICAL CHEMISTRY

University of Sindh, Jamshoro Pakistan

S. No. _____

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APRIL 15th 2016



TENDER DOCUMENT

Issued By:

Principle Investigator

Project No.6-6/Pak-US/HEC/2015/06
National Centre of Excellence In Analytical Chemistry,
University Of Sindh, Jamshoro – Pakistan



**National Centre of Excellence in Analytical Chemistry
University of Sindh, Jamshoro**

Tender Documents

Specification of HD Automatic Micropore Physisorption Analyzer

S. No	Item Description	Qty.	Quoted Price in C&F	Quoted Price in F.O.R
01	<p>HD Automatic Micropore Physisorption Analyzer (50 gallons/ Day Capacity)</p> <p>High-performance adsorption analyzer producing high definition analytical measurements for the determination of specific surface area and pore size distribution from 3.5 to 5000 Angstroms by physical adsorption. Requires Automatic Degas System (Item 1A or 1B) for operation.</p>			
02	<p>Analysis Gases</p> <p>N₂, O₂, Ar, Kr, CO₂, CO, H₂, Butane or any non-corrosive gases</p>			
03	<p>Techniques/Reports</p> <ul style="list-style-type: none"> • Single-point BET surface area • Multi-point BET surface area • Adsorption isotherms • Desorption isotherms • Langmuir surface area • BJH Mesopore volume • BJH Mesopore area • Total pore volume • deBoer t-Plot & others • MP-Method • Micropore Volume • Micropore surface area • Micropore Size Distribution • α Plot • Dubinin-Radushkevich • Dubinin-Astakhov • Freundlich & Temkin 			

	<ul style="list-style-type: none"> • Density Functional Theory • Reference isotherms • Horvath-Kawazoe • f-Ratio plot • Heat of adsorption • Graph Overlays • Summary and Options Detail 			
04	Operating Specifications <ul style="list-style-type: none"> • Surface Area Range: 0.0005 m²/g and up • Pore Diameter Range: 3.5 - 5000 Angstroms • Micropore volume: Detectable within 0.0001 cc/g 			
05	Pressure Measurement Resolution 0 to 0.1 mmHg Transducer: 0.0000001 mmHg 0 to 10 mmHg Transducer 0.00001 mmHg 0 to 1000 mmHg Transducer 0.001 mmHg			
06	Typical Minimum Relative Pressures <ul style="list-style-type: none"> • N₂ / Liquid N₂: 10⁻⁷ • Ar / Liquid Ar: 10⁻⁷ • CO₂ at 25°C: 10⁻⁹ 			
07	Software features <ul style="list-style-type: none"> • Microsoft Windows® compatible • Shares network drives and network printers • On-screen report editing and simple export to other formats ☑ Control two instruments from the same computer 			
08	Features of Analytical System <ul style="list-style-type: none"> • Hi-AC technology (Higher resolution Adsorbed phase Calculations) • Low-volume, Monolithic, Stainless Steel Manifold • Six user definable analysis gas inlets, plus degas, free space, and vapor ☑ Pressure stability monitoring assures equilibrated data points • Smart dosing system reduces analysis time • P_o can be measured, entered by user, or calculated • Patented Isothermal Jackets maintain cryogen level on sample tube allowing up to 72 ☑ Oil free analysis vacuum system reduces maintenance costs 			
09	REQUIRED WITH INSTRUMENT <ul style="list-style-type: none"> • Automatic Degas System (Item 1A or 1B) must be ordered with Item #1 			

10	<p>Automatic Degas System Standard Pump</p> <p>Two station, software controlled degas system allowing multiple temperatures, ramp rates and degas times to be programmed, automatically performed, stored as part of analysis parameters, and displayed in results Uses oil lubricated pump</p> <p>Or</p> <p>Automatic Dry Vacuum Degas System Oiless Pump</p> <p>Two station, software controlled degas system allowing multiple temperatures, ramp rates and degas times to be programmed, automatically performed, stored as part of analysis parameters, and displayed in results Hybrid Turbo Pump for ultra-high vacuum</p>			
11	<p>REQUIRED FOR OPERATION</p> <p>The items below should either be purchased with the instrument or must be provided</p>			
12	<p>Pressure Regulator Assembly</p> <p>Dual stage, high quality regulator, stainless steel diaphragm, 0 - 30 psig delivery pressure, isolation valve, and CGA 580 fitting (N2, He, Ar, Kr)., Minimum of three recommended; order additional as required</p>			
13	<p>Regulator Expansion Kit, 2-outlet</p> <p>Expands regulator's single outlet into two (2) outlets, each with an isolation valve</p>			
14	<p>Desktop Computer (Dell Or Equivalent)</p> <p>Core i5 intel 3.0 Hard Disk 1 TB Ram 8 GB Cache 8 MB Key Board USB 64 GB DVD Combo Mouse and Mouse Pad LED 19" HP LaserJet P1102</p>			
15	<p>ACCESSORIES</p> <p>Extended Operating Supplies Kit</p>			

Includes additional ferrules, O-rings, sample tubes, stoppers, etc. beyond those provided with the initial instrument supplies.

Liquid Nitrogen Transfer Unit

Centrifugal pump on a 47 liter storage vessel with wheeled cart to enable simple, non-pressurized storage and transfer of liquid nitrogen. Variable pump speed and flexible delivery hose makes filling analysis dewars safe and fast

10 Liter Dewar

For transportation and storage of liquid nitrogen for use with ASAP 2020

TranSeal Kit

Unique device which enables transfer of physisorption sample tubes while under vacuum from degas to analysis port

Chiller Dewar Option Kit

Permits connection of recirculating bath to cryogen Dewar in order to control analyses at a variety of temperatures

Water Vapor Option

Includes temperature controlled analysis manifold and water reservoir.

BET Surface Area Method Development

Micromeritics Contract Services Laboratories will define a set of optimized analysis conditions, including sample preparation steps, which will provide customers the ability to obtain reproducible results on their sample. This ideal for new instrument users or for new applications as it reduces time expenses if performed in-house. Method Development includes a detailreport summarizing the testing that was performed. This report is suitable for internal use or for regulatory submissions

Physisorption Customer Training Course

In addition to your complimentary on-site training, Micromeritics conducts operator training for many of our instruments at our Training Center in Norcross (Atlanta) Georgia. If you operate our instruments or supervise people who operate them, these training courses are what you need to help you become an expert. Whether you are new to our instruments or an experienced operator, you will find a wealth of

	information and insight into Micromeritics instrument operation. The foundation established by these courses provides a platform on which you can continue to build in the years to come. Price does not include travel and accommodation expe			
16	Manuals Warranty Service Manual Operational Manual			
	Total Amount with GST 17% or Total Value with Freight Charge			

Principle Investigator
National Centre of Excellence in Analytical
Chemistry, University of Sindh, Jamshoro
Project No.6-6/Pak-US/HEC/2015/06

Terms & Conditions:

1. The due receipt of the tenders is 15th April 2016. The tenders will be recovered on 22nd April 2016 and lastly on 28th April 2016 up to 01: 00 p.m which will be opened on the same day at 03: 00 p.m before the contractor or authorized person.
2. Earnest money @ 2% of the Tender Cost
3. No tenders will be accepted without production of 2% earnest money in shape of call deposit/ pay order.
4. The quoted price should be FOR/C&F
5. The offer must remain valid for 120 days from the date of opening for the successful tender.
6. After the approval of tender, the successful contractor shall be bound to supply the requisite items in the specified time; otherwise the related material will be purchased after completion of the legal proceeding at the risk and cost of the failure.
7. The conditioned tender or accompanying the cross cheque or without accompanying the Bank call deposit or Demand draft on A/c of the earnest money will not be entertained.
8. The contractor shall be bound to abide the rules and regulation of SPPRA along with the specified terms and conditions or directions of the related higher authorities as well as decision of the tenders opening committee.
9. The announcement letter of successful bidders with justification for acceptance or rejection will be affixed within 10 days on the Centre's notice board. The tenders opening committee reserves the rights to accept or reject tender without assigning any reason whereof.

The interested firms/companies may obtain the Tender documents from the Office of Director NCEAC during office hours (09:00 AM – 04: 00 PM) and Tender documents can be download from our website. www.ceacsu.edu.pk

All payments will be accepted in the form of demand draft in favour of Principal Investigator, HEC,PAK-US Project, National Center of Excellence in Analytical Chemistry, Jamshoro.

Principal Investigator

National Centre of Excellence in Analytical Chemistry

University of Sindh, Jamshoro Tel. 022-2772065, 9213429, Fax. 022- 9213431, website. <http://www.ceacsu.edu.pk>

