



CSIR-Indian Institute of Petroleum

(Council of Scientific & Industrial Research)

P.O.I.I.P., MOHKAMPUR, DEHRADUN – 248005 (UK) **INDIA**

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TENDER NOTICE NO 24/2017-18

Sealed tenders under two bids system (Part-I Technical bid along with EMD and Part II Price bid) are invited from the Indian / Foreign manufacturers/ Authorized Distributors or Indian Agents for the supply, installation and commissioning of the following equipment:-

Sl.No	File No.	Description	Qty	EMD (in Indian Rupees)
1.	PUR/1/17-18/340/AB/RTD/PO:	High Pressure Confocal Raman Spectrometer	One	Rs 2,80,000.00 (Rs Two Lakh Eighty Thousand Only)
2.	PUR/1/17-18/341/AB/RTD/PO:	Automated High Pressure Chemisorption Unit Coupled with Quadrupole Mass Spectrometer	One	Rs 1,96,000.00 (Rs One Lakh Ninety Six Thousand Only)

The bids must reach this office on or before **14.02.2018** upto **14:30 hours (IST)** and shall be opened on **same day at 15:00 hours (IST)**.

Please visit our website www.iip.res.in for further details for standard bid documents.


(Stores & Purchase Officer)



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TENDER NOTICE NO 24/2017-18

INVITATION FOR BID / NIT (Two Bid System)

1. Sealed tenders under two bids system (part-I Technical bid along with EMD and part II Price bid) are invited from the Indian / Foreign manufacturers/ Authorized Distributors or Indian Agents for the supply, installation and commissioning of the following equipments:-

Sl No.	Tender No.	Description of items	Qty	EMD (in Indian Rupees)
1.	PUR/1/17-18/340/AB/RTD/PO:	High Pressure Confocal Raman Spectrometer (Detailed specification as per Annexure)	One	Rs 2,80,000.00 (Rs Two Lakh Eighty Thousand Only)
2.	PUR/1/17-18/341/AB/RTD/PO:	Automated High Pressure Chemisorption Unit Coupled with Quadrupole Mass Spectrometer (Detailed specification as per Annexure)	One	Rs 1,96,000.00 (Rs One Lakh Ninety Six Thousand Only)

2. The complete set of "Standard Bid Document" is available in our website www.iip.res.in at free of cost. The same may be downloaded and used while preparing your bid. A copy of the same may be attached along with the bid, duly signed and stamped.
3. The bids must reach this office on or before **14.02.2018** upto **14:30 hours (IST)** and shall be opened on **same day at 15:00 hours (IST)**.
4. EMD should be in favor of Director, I.I.P, Dehradun in form of Demand Draft or Bank Guarantee.
5. The Director, Indian Institute of Petroleum, Dehradun reserves the right to accept any or all tenders either in part or in full or to split the order without assigning any reasons there for.
6. The Indian agent of the foreign suppliers should be enlisted with DGS&D.

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High resolution Confocal Raman Spectrometer

High resolution Raman spectrometer including a confocal microscope, transfer and filtering optics, an achromatic spectrograph equipped with multiple grating, multichannel detector, laser, power meter, high temperature controlled stages, sample holder. Spectrometer, Lasers, and Microscope should be direct coupled (no fiber coupling)

1. **Spectrograph:** High efficiency focal length achromatic spectrograph equipped with mirrors to work over a large spectral range from UV upto NIR
2. **Spectral Range:** 200 to 2100 nm
Spectral resolution: 0.5 cm^{-1} / pixel at 633 nm with a 1800 gr/mm and 1.5 cm^{-1} /pixel at 340 nm with 2400 gr/mm grating for NIR 600nm grating or better Or 0.5 cm^{-1} (FWHM) 2400gr/mm and 3 cm^{-1} (FWHM) 340nm with 2400gr/mm grating or better
3. **Spatial resolution:** Truly confocal microscope, Laser diameter less than 1 micron at 532 or 632 nm and axial confocal performance better than 2 micron.
4. **Gratings:** Holographic 2400 gr/mm (for UV), 1800, and 1200/600 gr/mm mounted on a motorized turret driven by software, to vary spectral resolution. The gratings should be quickly and easily interchanged without realignment using supplied software.
5. **Density Filter:** Motorized neutral density filter for varying the sample intensity (minimum 9 no.)
6. A set of Edge, interference and spatial filters together with required accessories for the below mentioned laser should be supplied. The filters should be exchangeable automatically through software.
7. **Confocal research grade Microscope with high stability**
 - Removable bottom stage or Free space microscope (optional)
 - A revolver equipped with 5 plan-achromatic objective-lenses
 - Reflected light illumination and transmitted light illumination with brightness control.
 - 10x, 50x (LWD= 8.2 mm or better), 40x (UV objective), 100x (objectives) 15x (UV NIR). A suitable objective for corrosive liquid should be quoted if required.
 - Binocular head with eyepieces (optional)
 - High definition color video camera for viewing sample under white light illumination and simultaneously visualize the laser spot. A video card for digitization of the image of the sample should be provided.
 - Automated switching between visualization and Raman measurement (optional)
 - Manual XY sample stage (optional)
 - Any objective required to meet the end to end unit.
8. **XYZ mapping stage:** Automated XYZ motorized sample stage with positioning joy stick, controller, computer interface card, drive electronic and software to allow scatter, line, and area mapping and confocal depth profiling. Minimum Step size 0.1 micron or less in all axis. (Desirable: XY 100mmx70mm, XY step-100nm, Z step -20nm or better)
9. **Lasers:** Suitable external platform and transfer optics system should be provided to accommodate up to four lasers. Raman measurement 50 cm^{-1} onwards from laser line except UV. For UV, Raman measurement is 200 cm^{-1} from laser line. 1MHz line width for all laser
 - He-Ne laser, 633 nm, 15mW
 - 325 nm, 20 mW laser (UV laser optional)
 - Multiline air-cooled argon laser emitting all lines 457 (20mW), 488 (100mW) and 514 nm (100 mW), Total output. 300 mW (optional)

- 532 nm, 100 mW laser
 - 785 nm, 100 mW laser
 - Optional fiber probe 532nm, 100mW Laser and 1MHz line width.
10. All kind of laser should have minimum one year of warranty from the date of installation.
- 11. Detector:**
A multi channel, high sensitivity and ultra-low noise air/peltier cooled (-60°C) CCD detector.
- 1024×256 pixel
 - Size: 26 x 26 micron
 - Spectral range: 200 to 1050 nm
 - Quantum efficiency > 30 % between 500 to 800 nm
- LN2 cooled InGaAs diode array detector **as an option and quote separately**
- 1024 pixel
 - Size: 25 x 500 micron
 - Working range: 800 to 1550 nm
 - Quote with appropriate objective and gratings.
12. Power meter working from 300 to 1000 nm including density filters
13. Option for micro-photoluminescence measurement (325 nm, 532 or 514nm) and quote separately
14. Automation of laser switching for at least two excitation wavelength except UV
15. Laser safe microscope of class 1 enclosure should be quoted **as an option and quote separately.**
16. Macro sampling kit for microscope (optional)
- Optical interface kit
 - Liquid sampling accessories
 - Solid sampling accessories
 - Powder sampling accessories
- 17. Future Upgrade:** The Raman microscope system can be easily coupled with AFM/NSOM and can be configured for SERS and TERS measurements. Required accessories should be quoted **separately as an optional item.** Available list of compatible AFM system should be provided.
18. High Temperature controlled stage form **Linkam Scientific Instruments, U.K.**
- TS1500V (ambient to 1500°C) temperature controlled stage with sampling kit
 - T95 System controller
 - Link Pad and Linksys 32 software
 - Cooling water circulation unit
 - Catalytic cell reactor, CCR1000 (ambient to 1000°C) with sampling kit
 - Objective lenses and condenser lenses for both the temperature controlled stage
 - Stage clamp compatible with the microscope for both the stages.
 - Connecting cable and hoses
 - THMS600 (-196 to 600°C) temperature controlled stage **as an option and quote separately.**
19. 10KVA online UPS with minimum 30 min power backup of complete Raman system (Emerson or equivalent).
20. Software should be windows compatible and should be supplied with two computer dongles permitting the control of the instrument, data acquisition, and data manipulation including Raman and photoluminescence mapping and storage option. The computer should have dual LCD display with latest hardware configuration and a laser printer.
21. **5 years of all kind of spares and consumables for running of the Raman system and all supplied accessories (e.g. Linkam high temperature stage etc.). A list of spares and consumable required should be provided along with quantity of each item.**

22. Any other accessories, spare part and consumable required to complete the system should be quoted with full specifications.
23. Optical Bench required size

Terms and conditions for instruments

- The supplier must provide installation, commission, and training for group users from operating the instrument to complete structure determination/solution, general maintenance at site without any additional cost with supply of all the relevant manuals and documents in printed format.
- Extended warranty for the Raman system, all accessories and spare parts should be for min of **3 years or more from the date of installation.**
- The supplier must produce detailed lists of Indian users.
- The supplier must demonstrate that they have appropriate set-up and capability to provide after-sales service effectively in India for prompt service support(**within 48h**) along with number of service engineers specially trained on the offered system.
- Necessary pre-installation advice should be sent immediately after the placement of the order.
- The tender document **MUST** enclose valid standard specification documents from the company and every specification must be a part of that standard document.
- The supplier must give detailed lists of at least two Indian users for quoted model.
- Onsite comprehensive user and maintenance training.

Optional

Recommended list of spares for smooth running of the instrument and additional CMC/AMC charges for three years on annual payment basis.



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