

Tender Notification for the Procurement of Differential Electrochemical and Ambient Gas Analysis Mass Spectrometer

Dear Sir,

Kindly send a quote for the following item on CIP Bangalore basis. Your quotation should clearly indicate the terms of delivery, delivery schedule, E.D., payment terms etc. The tender should be submitted in two separate sealed envelopes - one containing the technical bid and the other containing the commercial bid, both of which should reach us, duly signed on or before 1700 hours, 24 NOV 2017.

Please enclose a compliance certificate for all the items including mass spectrometer, interface, electrochemical cells etc. along with the technical bid. Technical details and other terms and conditions mentioned below.

Sincerely,

Chinmoy Ranjan
Department of Inorganic and Physical Chemistry
IISc Bangalore

Two sets of (technical + commercial) sealed bids should be addressed to: The Chairman, Department of Inorganic and Physical Chemistry, Indian Institute of Science (IISc) Bengaluru, India – 560012.

Technical Details:

A mass spectrometer which can carry out differential electrochemical mass spectroscopic (DEMS) studies along with ambient pressure gas analysis (GA) measurements. The system must be provided with a research grade Mass Spectrometer with quadrupole mass analyser and faraday/multiplier detector. The system should be leak tight, supplied fully functional (calibrated) allowing for collection and analysis of DEMS data and ambient gas analysis data. The system should be inclusive of all hardware and software (including required libraries) required for collection and analysis of such data.

Mass Spectrometer: The system should come with quadrupole mass analyser with mass range of 0-200amu or better and faraday/electron multiplier detector. Preferred systems would have high sensitivity and allow for efficient separation of overlapping species. The system must be supplied with necessary spares (2 at least) for consumables (such as filaments and filament kits).

Membrane Inlet: The system must have a differentially pumped vacuum system with a membrane inlet for measurements in liquid electrochemical environment allowing for Differential Electrochemical Mass Spectrometry (DEMS) studies. The inlet must have a vacuum flange with a frit supporting the microporous membrane. The inlet must have fast-acting isolation valve(s) to protect the mass spectrometer in case of membrane failure.

Gas Analysis Inlet: A heated capillary inlet (upto 200-degree Celsius) must be provided for gas analysis measurements which must be able to obtain data in pressures up to 2000 mbars at least. All required power supplies must also be included.

DEMS Cells: Available electrochemical DEMS cells, compatible with the supplied membrane inlet, must be included. Two cells (preferably of different types) are needed. The cell designs must be well

established and suitable for sensitive detection of reaction products, monitoring faradaic reactions and calculating turnover frequencies. Manufacturers who can provide published data from similar designs cells would be preferred.

Electrodes: The DEMS cells must be supplied with necessary electrodes (reference, counter and working) so that the DEMS cells are fully functional and can be tested without additional specialized electrodes. In designs where the working electrode material is not directly coated on the porous membrane surface, glassy carbon and gold working electrodes are desired.

In the case that the working electrode geometry is non-standard (where standard is cylindrical electrode with flat surface, or a plate electrode with a square or rectangular surface for electrochemical measurement), glassy carbon or Gold working electrodes should be preferably included. If not, options for glassy carbon and gold working electrodes should be included along with the standard set of working electrodes included with the system.

Spare consumables such as PTFE membrane(s) should also be included.

Computer Hardware:

The system must be supplied with a required microprocessor optimized for operation with the necessary software. For the microprocessor, a branded variety, that can be serviced locally is preferred.

Software:

Software must allow for control of all experimental protocols, have necessary features for data collection, real time display, quantitative data analysis and representation (partial pressure and concentrations such as ppb, ppm etc). The software must be able to run with leak detect mode. The software must be inclusive of spectral libraries that are needed for data analysis and should be searchable through software. Software license must allow for use of the software on additional computers (2 at least) in offline conditions, specifically for data analysis.

Other Terms and conditions:

1. Installation and Training must be included.
2. The vendor should have a track record of having previously supplied similar DEMS equipment in India (please furnish details).
3. The vendor should have qualified technical service personnel for servicing the equipment.
4. The payment will be through confirmed irrevocable Letter of Credit.
5. The lead time for the delivery of the equipment should not be more than two months from the date of receipt of our purchase order.
6. The instrument must carry a comprehensive warranty of 3 years (for all the parts excluding consumables) from the date of installation.
7. Validity to be three months minimum.
8. Mode of shipment – air freight to be mentioned.