

**Tender No.: IITK/CHM/VKS/16-17/10**

**Date: 19-10-2016**

**Last Date of submission: 26.10.2016**

**Requirement: Rotavapor (2 nos.), Vacuum controller (2 nos.), Vacuum pump (2 nos.) and Chiller (1 nos.)**

Quotations are requested from suppliers for the above items. Please send your quotations by **October 26, 2016 (5.00 pm)** to the undersigned in a sealed envelope.

**Specifications for Rotavapor system:**

**Rotavapor (2 nos.)**

- Electronic lift with provisions for automatic lifting of the flask in case of power failure.
- Rotation speed up to 280 rpm or better with microprocessor control.
- All glass components should be made of Borosilicate 3.3 glass and Cooling surface area of 1500 cm<sup>2</sup> or better.
- End stop positioner adjustable via button within a range of 170 mm with a stroke distance of 220 mm.
- Multifunctional combi-clip for easy removal and fixation of evaporating flask
- 7-stage adjustable immersion angle for the use of different flask sizes with maximum adjustable angle of 40 degrees.
- Should be supplied with P+G coated Vertical Glass Assembly.
- Large top hole Vertical condenser with Screw cap SVL 22.
- Digital display of set and actual bath temperature, rotation speeds and lift position.
- Microprocessor controlled bath temperature ranging from ambient to 220 deg C with an accuracy of  $\pm 1$  deg C.
- Transition of heating bath data to vacuum controller through Infrared Communication.
- Automatic over heat cut-off protection
- Cordless heating bath for easy emptying and filling of water bath without removing electrical cables.
- Bath capacity- minimum 5 Litres.
- Evaporating flask from 50-5000 ml can be used on the same joint adapter without additional connections.
- 1 liter Evaporating Flask and Receiving Flask should be provided in standard scope of supply.
- IP 21 Protection Class

**Vacuum Controller (2 nos.)**

- Control unit with large ~4.3 inchs. LCD display for centrally controlling all process parameters of a rotavapor like rotation speed, bath and coolant temperature, pressure, process time etc.
- Manual management of pressure settings and aeration with timer function
- Should have facility to program Clock-wise and anti-clockwise rotation of evaporating flask for a defined time range.
- Integrated aeration valve and precision pressure sensor.

- Automatic aeration when pressure is above 1400 bar.
- Should have integrated solvent database for setting up dynamic distillation conditions.
- Integrated wear part library for common wear parts with order code.
- Should have facility of integrated leak test to check possible leaks.
- Should have remote monitoring function that allows to track current status of distillation remotely via smartphones / tablets and informs user when process is terminated.
- Measuring range: 1400- 0 mbar; Control range: ambient to 0 mbar.
- Woulff bottle included.

### **Vacuum Pump (2 nos.)**

- Single stroke Speed control vacuum pump with a flow rate of 1.8 m<sup>3</sup>/h.
- Ultimate vacuum – 5 mbar or better.
- Chemically resistant diaphragm made of PTFE
- Should have glass window to check solvent build up and contamination.
- Sound Level adjustable as per EN 61010-1 between 32-57 dBA.
- Should be supplied with silencer.
- Should be speed controlled pump and stops after reaching desired vacuum pressure.

### **Chiller (1 no.)**

- Compact and Robust Re-circulating Chiller with a cooling capacity of 550 Watts at 15°C.
- Should have automatic stop function when the distillation process is terminated.
- Temperature Range: -10 to +25' C
- Flow rate: 2.5 liters/min at 0.6 bar and tank volume: 3 Litres
- Coolant: CFC Free
- Built-in features like ECO mode, temperature lock.

### **Terms and Conditions:**

1. The quotation containing technical specification and price for the items mentioned should be sealed.
2. The supplier shall bear all costs associated with the preparation and submission of its quotation including manuals, literatures etc.
3. Quotations should have a minimum validity of 30 days from the date of opening.
4. Delivery period shall be a maximum of 60 days from the receipt of purchase order.
5. The name of manufacturer and country of manufacture should be clearly stated. In the absence of these particulars the quotation is liable to be rejected.
6. Since rotavapor, vacuum controller, vacuum pump and chiller will be connected and used only for academic research, all four should be quoted by same vendor. Additionally all instruments should have at least two yeas warranty.

7. Prices could be quoted in Indian rupees/foreign currency and as much as possible should include the cost of shipping to IIT Kanpur.

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