



**Environmental Geochemistry Laboratory**  
**Department of Civil Engineering**  
**Indian Institute of Technology Kanpur**

---

Inquiry no.: IITK/CE/AS/12-2014/01

Date: 05.12.2014

Closing date and time: 17.12.2014 at 3 pm (**Revised 29.12.2014 at 11 am**)

**Sub: Call for quotation for supply of particle size and zeta potential analyzer**

Sealed quotations (**Technical and Financial bids separately**) are invited from authorized suppliers for items and their specifications given below before 3 pm of 17.12.2014.

**Revised due date for submitting your offer is on or before 11 am of 29.12.2014.**

The quotation for **installation of particle size and zeta potential analyzer and related accessories** should be sent in two parts in sealed envelopes, clearly marked as "**Technical Bid**" and "**Financial Bid**". The Technical Bid should contain detailed technical specifications of the product being offered and **should not mention any prices**. The Financial Bid should include the detailed price quotation clearly, including the cost of the equipment, taxes, service charges, shipping and handling charges, if any. Financial bids will be opened only when Technical Bids are found acceptable. Our organization is an educational institute of repute and liable to get maximum education discount from manufacturer. Please specify it, separately.

**Overall Specifications:**

Dynamic Light Scattering Particle Size and Zeta Potential Analyzer for characterizing colloidal nanoparticulate and macromolecular particles in water and other solvents. It should be a user-friendly system to determine particle size distribution, its surface charge and molecular weight.

**Key Features:**

**Zeta potential**

Measurement range (dia):	~1 nm – 100 microns
Minimum sample volume:	150 $\mu$ L (20 $\mu$ L using diffusion barrier method)
Accuracy:	0.12 $\mu$ m.cm/V.s for aqueous systems using NIST SRM 1980 standard reference material
Sensitivity:	10 mg/mL (BSA).
Concentration	Wide range (0.1 ppm to 40% w/v)

**Particle size and molecular size**

Measurement range (dia):	~0.5 nm – 10.0 microns
Minimum sample volume:	12 $\mu$ L
Accuracy:	Better than +/-2% on NIST traceable latex standards
Precision / Repeatability:	Better than +/-2% on NIST traceable latex standards
Sensitivity:	0.1 mg/mL (Lysozyme)

**Molecular weight**

Molecular weight range (estimated from DLS):	<1000 Da - $2 \times 10^7$ Da
Molecular weight range (estimated from Debye Plot)	<1000 Da - $2 \times 10^7$ Da



**Environmental Geochemistry Laboratory**  
**Department of Civil Engineering**  
**Indian Institute of Technology Kanpur**

---

**Accessories and additional features (clearly show individual prices):**

- Autotitrator should be included with the instrument to automate the measurement of size & zeta potential as a function of pH, conductivity or additive concentration. Additionally, an online degasser and size exclusion attachment will be desirable.
- Particle Size and Zeta Potential standards
- Zeta Potential cells, particle size cuvettes and low-volume quartz cuvettes
- Sample cell should include solid surface charge measurement cell and High Concentration Zeta Potential Cell able to measure samples with concentration up to 40% without the need of dilution
- UPS system with 1 Hour battery backup.
- Temperature control range should be 0 to 90 °C with accuracy better than +/-0.5 °C with an Optional upgradeability to measure up to 120 °C
- The system must use a digital correlator and the bid must specify the minimum sample time, maximum delay time and maximum number of channels
- Low power laser should be 4 mW or higher with auto attenuation feature. (As per ISO 13321, to avoid any thermal convection you need to have a low power laser.)
- Measurement angle should at least be 90° meeting ISO dynamic light scattering standard. Additional angles are welcome.
- Personal Computer with necessary Win8 compatible operating system and software for controlling the Zeta Sizer system.

Standard software should include capability to measure and report size, zeta potential, Molecular Weight and their distribution along with Trend Analysis methods. It should use standard algorithms such as NNLS, CONTIN and Cumulant etc. The software should have facility to export measured data and result into ASCII format, so that data can be further processed. The software should have capabilities to carry out protein studies and its state such as melting point study / crystal screening.

- System should preferably be upgradeable for flow mode operation with SEC to enable connection of 1 or 2 external detectors & a remote measurement start. The optics must be fully pre-aligned with no user adjustment required.
- Instrument should have gel permeation chromatography attachment facility, to measure molecular weight of organic as well as biological molecules.



**Environmental Geochemistry Laboratory**  
**Department of Civil Engineering**  
**Indian Institute of Technology Kanpur**

---

**Terms and Conditions:**

- The vendor should have application labs in India with desired instrument facility for application support/method development/pre demonstration purpose.
- The vendor should supply list of installation (minimum 5, in last two year) in India of the same model quoted against this enquiry.
- Manufacturer should have appropriate certification.
- If the Financial Bid is included in the Technical Bid, then the quotation will be rejected.
- Quotation should have minimum validity of 60 days from the date of opening.
- Delivery period should be within 60 days from the receipt of the purchase order. Shorter delivery time may be given preference.
- Taxes, packaging, forwarding freight charges, if any should be mentioned.
- Quotation should carry proprietary certificates and authorization letters/certificates.
- Prices should include installation and training of the equipment.
- The warranty period should be specifically stated. Higher warranty period may be given preference. Additionally, quote must include prices for AMC.
- The firms may also quote for optional accessories which will extend the capability or ease of use of the equipment.
- All quotations should be in the currency of the country of origin of the instrument and CIF, Delhi (if imported), and **also converted to ₹.**
- The Institute is exempted from excise duty and pays a nominal customs duty of ~5% under Govt. of India notifications 10/97 and 51196, respectively.
- Normal payment terms for the Institute will be applicable (90% on delivery of the items and the remaining 10% after satisfactory installation/ inspection).
- The Institute reserves the right for accepting and rejecting any quotations without assigning any reason thereof.

Thanking you,

Sincerely,

Dr. Abhas Singh

Assistant Professor, FB-306, Department of Civil Engineering,  
I.I.T. Kanpur, Kanpur- 208016, Uttar Pradesh, India.