

Quotation due date: 13.12.2012

Sub: Procurement of Particle size analyzer system (PSA system)

We are in the process of procuring particle size analyzer system (PSA system) for research and education. Following are the types of applications, for which this PSA system will be utilized

Measurement of radius of gyration of polymers

Measurement of size of micelles

Measurement of size Brownian and non-Brownian particles

Measurement of zeta potential and hence charge on the dispersed species

Measurement of molecular weight of dispersed polymers

For above-mentioned applications, a PSA system with following detection schemes is being considered:

- a) Photon correlation spectroscopy based detection for nano sized objects
- b) Diffraction based detection for larger sizes up to few thousand microns

For this purpose, we would like to get quotations for the following system requirements. The format given below should be followed in your quotation. Provide item-wise breakup of prices, as it will help us in deciding our final purchase configuration. I.I.T. Madras has the right to accept the whole or any part of the tender or portion of the quantity offered or reject it in full without assigning any reason.

Provide a quote for the models that meet specifications for each of the options. Depending on our applications and budget considerations, we will purchase none or selected components from the list.

In the quotation please specify:

1. Warranty (1 year or more)
2. Validity of quote
3. AMC terms and costs
4. Delivery time
5. Installation and on site training must be included.
6. Mention the specification on the computer needed. You may quote this separately as option
7. Mention all the utilities (such as compressed air etc) needed for satisfactory running of the equipment.

The bid must be in two bid system (i.e. separate clearly marked sealed envelopes for technical bid and commercial bid). Email quotation is not acceptable.

The following technical specifications were arrived at for the procurement particle size analyzer system (PSA system)

PSA system - Photon correlation spectroscopy based detection:

Parameters	Specification
Size Range	0.3 nm to 8 um
Laser Source	Power: 4mW and above
Measurement angle	173 ° and one other angle
Temperature Range	0°C - 70° C
Zeta – Range	-200 mV to + 200mV
Molecular Weight	Less than 2×10^7 gm/mol
Sample Concentration Range	0.1 ppm to 40 wt %
Software	1. Access to autocorrelation data for analysis with models 2. Data Export in Text/Spreadsheet
Power supply	Operation with 230 V power supply

Optional Accessory:

Autotitrator - which will enable us to study the effect of pH, conductivity or additive titration on the particle sizes.

PSA system - Diffraction based detection:

Parameters	Specifications
Size Range	20 nm to 2000 micrometers
Laser Sources	Two Laser Sources
Inline Ultrasonic Probe	Agitator for dispersion of samples
Systems	Wet Dispersion System
Software	1. Data export to Text/Spreadsheet 2. Indicate possibility of access to intensity vs angle data
Power supply	Operation with 230 V power supply

Optional Accessory:

Dry Powder unit – for the measurement of powder size distribution unit