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PUR-221F/EP/WWT/2017


Date: 05.02.2018

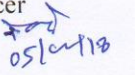
Last date of Submission of Bid : **20.02.2018 up to 5.00 pm**
Date of Opening of Tender (Technical bid): **21.02.2018 at 3.00 pm.**

Ref.: Tender enquiry No. **PUR-221F/EP/WWT/2017** dated **24.01.2018** for Supply and Installation of **DLS Nanosizer**

Revised specification finalized after Pre-bid conference is as per attached sheet.

All the Terms & Conditions of the Tender document shall remain unchanged.


भंडार एवं क्रय अधिकारी
Stores & Purchase Officer


05/02/18

Technical specification and allied technical details

Parameters	Specifications
Functions	The system should be able to perform particle size, zeta potential and molecular weight determination on samples such as colloids, emulsions, proteins and other nanoparticles.
Measurement range	<ul style="list-style-type: none"> - Particle size and molecular size: $\leq 0.3\text{nm}$ to ≥ 10.0 microns (diameter). - Zeta potential: ≤ -200 mV to $\geq +200$ mV - Molecular weight: ≤ 300 Da to $\geq 20\text{M}$ Da. - Electrophoretic mobility Range: 0 to ≥ 15.5 microns/sec/volt/cm
Measurement principle	<ul style="list-style-type: none"> - Particle size and molecular size: Dynamic Light Scattering - Zeta potential: Phase Analysis Light Scattering - Molecular weight: Static Light Scattering using Debye plot or equivalent
Scattering Angle	15° , and/ or 30° , 90° , $> 150^\circ$ (Back scattering)
Sampling Cell	<ul style="list-style-type: none"> - Non-stick teflon removable sampling cell that can be easily removed for washing, sonication and autoclave sterilisation. The instrument should only require one sampling cell, whereby the particle size, zeta potential and molecular weight analyses are all carried out on the same sample in the same sampling cell at the same time. - Additional sample cells (quartz/ glass; $< 200 \mu\text{L}$) should also be provided. Different micro cells for different measurement are acceptable. - Disposable sample cells should also be provided.
Minimum sample volume	<ul style="list-style-type: none"> - Particle size and molecular size: $\leq 20\mu\text{L}$. - Zeta potential: $\leq 100\mu\text{L}$ - Molecular weight: $\leq 20\mu\text{L}$
Sample Concentration	Up to 40% (v/v)
Accuracy	<ul style="list-style-type: none"> - Particle size and molecular size: Better than $\leq \pm 2\%$ on NIST traceable latex standards. - Zeta potential: $0.12\mu\text{m.cm/V.s}$ for aqueous systems using NIST SRM1980 standard reference material. - Molecular weight: $\leq \pm 10\%$ typical.
Detector	Avalanche photodiode detector or equivalent or better
Precision / Repeatability	Better than $\pm 2\%$ on NIST traceable latex standards.
Sensitivity	<ul style="list-style-type: none"> - Particle size and molecular size: 10mg/mL (Lysozyme) - Zeta potential: 10mg/mL (BSA)
Solvent Compatibility	The sampling cell must be compatible for the analysis of aqueous, polar, non-polar and organic solvents.
Optical Components	During the measurement, the instrument must have optical components that are fixed in place to ensure long term stability of the instrument. It should not require movement to adjust the distance of the sample from the laser for dilute and concentrated samples. The optics should be pre-aligned and should not require user adjustment.
Temperature control range	$0^\circ\text{C} - 90^\circ\text{C}$ or above ($\pm 0.1^\circ\text{C}$ sensitivity)
Light source	Standard Solid State Laser Diodes and $> 3\text{mW}$ nominal output.
Computers and UPS	The system should be supplied with Latest Computer with minimum Windows 7 or higher version (such as Windows 10), with 1TB HDD or more and minimum 4 GB RAM and Printer for operation. UPS of 3KVA with 30 Min Back up

	should be supplied.
PC interface, Data analysis and software features	The system should be supplied with suitable windows based software for system control, data collection and analysis. Calibration routines to be controlled by the software. The software should have all the data handling features like user defined report generation, data/figures export to spreadsheets, offline data processing etc.
Software Compatibility	The software should be compatible with latest Windows operating systems.
Standard Operating Procedures	The software must allow the user to define a Standard Operating Procedure (SOP) that indicates the parameters for the sample analysis.
Reference Parameters	The software must include a library of refractive indices and viscosities of common materials.
Software Algorithm	The software should accurately report monomodal, multimodal, broad and narrow distributions without the need to select special calculation algorithms before the analysis. Apart from algorithms for the analysis of spherical particles, the software also has modified Mie algorithms suitable for the accurate analysis of non-spherical particles.
Database of Results	The software should automatically saves the data from each analysis into a database for subsequent data review.
Comparison of Data	The software should display 10 or more measurements within graphs or overplots to facilitate result comparisons.
Data Recalculation	The software must allow the user to make changes to the sample parameters to recalculate the size distribution data without repeating the experiment.
Export of Data	The software should allow the data to be easily exported to a spreadsheet software such as Excel.
Report Designer	The software must include a report designer to allow the user to create customised reports.
Software Compatibility	The software should be compatible with latest Windows operating systems.
Local accessories (if any)	Need to be supplied with the main instrument
Installation & Application Support	Installation and post-installation application support should be provided
Warranty	Minimum 2 years standard system warranty should be provided