

**All-India Institute of Medical Sciences
Ansari Nagar, New Delhi-29
(RESEARCH SECTION)**

Ref. No. 20/Stores/Biochem/PC/2017-18/RS

Dated: 29.09.2017

Subject: Purchase of Nanoparticle Sizing and Zeta Potential Measurement, for the Deptt. of Biochemistry, AIIMS, New Delhi-29 on proprietary basis- Inviting comments thereon.

The request has been received from Dr. Parthaprasad Chattopadhyay, Deptt. of Biochemistry, AIIMS to purchase the subject item from M/s Malvern Instruments Ltd. UK on proprietary basis. The proposal submitted by M/s Malvern Instruments Ltd. UK and Performa Invoice and Departmental PAC certifications are attached.

The above documents are being uploaded for open information to submit objections, comments, if any, from any manufacturer regarding proprietary nature of the equipment/item within issue of 15 days giving reference **No. 20/Stores/Biochem/PC/2017-18/RS**. The comments should be received by office of Stores Officer (RS), Research Section at AIIMS on or before **13/10/2017 upto 12:00 p.m.**, failing which it will be presumed that any other vendor is having no comment to offer and case will be decided on merits.

STORES OFFICER (RS)

Encl: Related documents enclosed.

- 1. Departmental PAC Certificate enclosed.**
- 2. Specification of equipment**
- 3. Performa Invoice**

Specifications for Nanoparticle Sizing and Zeta potential measurement equipment

A. Size measurement: by Multimodal Photon Correlation Spectroscopy / Dynamic Light Scattering;

1. Red Laser light source ;
2. Avalanche Photo Diode detector
3. Digital Correlator with at least 25ns sampling time and at least 2048 channels; capable of being programmed as log or linear correlator by user;
4. At least 2 angle simultaneous detection (10-25° front scatter and 165 – 175° backscatter optics) for compensating for aggregates by cross-correlation;
5. Back scatter optics should be capable of altering sampling volume of dispersion depending on concentration while maintaining a narrow scattered beam diameter and high photon density at long working distances by optically matched single mode high coherence fiber lasing and detection optics;
6. Detectable particle size between 1nm to 5µm at an accuracy $\pm 3\%$ at concentration of 0.1mg/ml to 30%w/v or better;
7. Min sample volume less than or equal to 50µl;
8. Temperature adjustable from 4°C to 60°C;
9. Reusable as well as Disposable cells suitable for aqueous and organic medium;

B. Zeta potential measurement: by Multimodal Electrophoretic Phase Analysis Light Scattering

1. Measurable zeta potential range ± 500 mV or better;
2. Capability to isolate charged samples from electrodes to prevent electrode fouling and polarization [P];
3. Able to correct for endosmotic flow during measurement in small volumes irrespective of optical positioning and also able to measure zeta potential distribution;
4. Minimum sample volume less than or equal to 50 µl; Same cell should be able to measure size also;
5. Sample conductivity 100mS/cm or above
6. Temperature adjustable from 4°C to 60°C
7. Disposable capillary and reusable cells with multiuse electrodes suitable for aqueous and organic medium;

C. Molecular weight determination: MW range – 1 KDa to 20,000 KDa using back scatter optics

D. Software:

I. Sizing –

1. Capability to resolve at least 3 peaks, Graphical display of particle size, auto-correlation function and residual error,
2. Display of particle data list in percentile, Mean Size, Polydispersity Index, Z-average; value, width and ratio of individual peaks,
3. Ability to detect and quantify aggregation;
4. Able to calculate size by user selectable Cumulant, Contig and Distribution algorithm using user defined ranges and corrections in the correleogram

II. Zeta potential –

1. Capability to resolve at least 3 peaks,
2. Graphical display of zeta and mobility distribution and power spectrum
3. Calculation of mean and standard deviation of Zeta potential; value, ratio and width/std deviation of each peak

III. General –

1. Internal library and provision of user supplied data of common solvent refractive indices, viscosity and dielectric constants; ability to derive physiological aqueous dispersant properties (refractive index, viscosity and dielectric constant) at any given salt concentration and temperature;
2. Detailed Quality Indices for each run as well as machine generated reports of problems and advice to circumvent them should be available for novice users;

E. All-In-One desktop: At least Intel i5 dual core, 2GHz, 4GB DDR4 RAM, 250MB SSD drive, DVD-RW, 23” display with appropriate OS (Win 7 or above) and Software for operation of equipment and analysis of results

F. Others:

1. Starter kit of consumables to be provided
 - Cuvettes of normal (<1ml – 2 nos; glass) and micro (<50ul – 50 nos; polymer) volume for size
 - Electrode assembly reusable dip-cell for normal (<1ml – 1 nos) and disposable for micro (<50ul – 20 nos) volume for zeta potential
 - Size and zeta potential standards
2. Minimum Warranty for 5 years and Quote should mention CMC costs on a per year basis from the end of 5 years warranty period to 10 years
3. Quote should include freight, insurance and installation charges and any other charges applicable.

4. Cost of all consumables (cells of different sizes and materials as well as electrodes and size and zeta potential standards) should be mentioned separately in the quote.
5. Letters of performance from at least 3 academic/research entities and List of all academic/research entities who were supplied with the quoted equipment in the last one year along with contact person name, telephone number and email id must be provided (Delhi and other cities)
6. Equipment should be CE (Europe) / US FDA certified/approved.

28th July 2017

To Whom It May Concern,

We hereby confirm that the Zetasizer Nano ZS for the automation of size, zeta potential or intensity measurements as a function of pH, conductivity or additive concentration is a proprietary item of Malvern Instruments Limited UK.

The proprietary items/technology containing the below listing are Patents manufactured by Malvern Instruments only.

Patents granted –

Non-Invasive: Back Scatter (NIBS)

- EP884580
- US6016195
- JP11051843

High and Low Frequency Electrophoreses (M3)

- EP1154266
- US7217350
- JP04727064

Light Scattering Measurements using Simultaneous Detection

- EP2235501
- CN102066901
- JP2011523451
- US20090251696

Surface Potential Determination in a Dip Cell

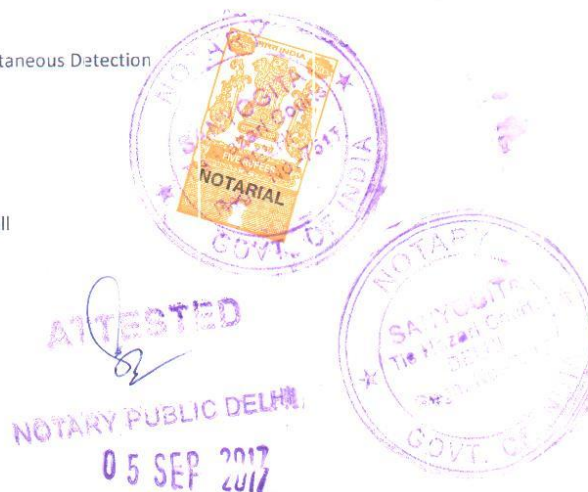
- WO2012172330

On behalf of Malvern Instruments Ltd.



Rob Prestidge
Vice President Finance & Systems

Material relationships





Aimil Ltd.

Instrumentation & Technologies



Corporate Office: Naimex House, A-8, Mohan Co-operative Industrial Estate, Mathura Road, New Delhi 110044, INDIA
Phone: 91-11-30810200, Fax: 91-11-26950011, Email: info@aimil.com, Website: www.aimil.com
CIN - U74899DL 1972 PLC 006093

Our Ref. : AIIMS/ZS/BC/MLV/17/03/01
Date : 05.09.2017

Department of Biochemistry
Room No. 4007, Convergence Block, 4th Floor,

All India Institute of Medical Sciences,
New Delhi 110029, India
Phone: 011-26549238

Kind Attn : Dr. Parthaprasad Chattopadhyay

QUOTATION FOR MALVERN ZETASIZER NANO ZS

PART NO.	HSN Code	DESCRIPTION	PRICE PDS STG
ZEN3600	90275090	Zetasizer Nano ZS for the measurement of size, molecular weight and zeta potential of dispersed particles in Solution. Includes 4mW 633nm He-Ne laser. Size range maximum (dia) 0.3nm to 10.0 microns* Size range for zeta potential 3.8nm to 100 microns** Size measurement angle: 12.8° & 175° Mobility range >+/- 20µ.cm/V.s Conductivity range 0 to 200mS/cm Conc. Minimum for Size 0.1ppm**, 0.1mg/mL, 15kDa protein Conc. Maximum for Size: 40%w/v** Zeta Potential Range: No effective Limitations Mobility Range: Minimum Zero, No effective Maximum Minimum Vol. for Zeta Potl: 150 micro-liter (ZEN 1010 Cell) Molecular weight range(est): 342 to 2 x 10⁶ Da** Molecular weight range(abs): 980 to 2 x 10⁶ Da** Temperature range 0°C to 90°C (70°C maximum with folded capillary cell) * Peak mode range (diameter), 0.6nm – 8.0 microns **Sample dependent Includes:- Optics unit with internal 4mW, 633nm He-Ne laser. System conforms to the requirements of CDRH Class 1 and BS EN60825 Class 1. Materials in contact with sample: PTFE, silicone, polycarbonate, polypropylene, gold Installation kit comprising: Software on CD Manual Mains cable USB cable Spare fuses Consumables kit comprising: - Folded capillary cell, pack of 10 polycarbonate with gold plated electrodes and 20 stoppers (DTS1070) - One 12mm o.d. square glass cuvette with round aperture and stopper (PCS8501) 100 12mm o.d. square disposable polystyrene cuvettes with 100	£ 39,960.00

Dr. Parthaprasad Chattopadhyay, MD, PhD
Professor
Department of Biochemistry
All India Institute of Medical Sciences
New Delhi-110 029, INDIA

Branches: Bengaluru, Bhubaneswar, Chandigarh, Chennai, Guwahati, Hyderabad, Indore, Kochi, Kolkata, Lucknow, Mumbai, Vadodra, Nagpur

Beyond Options. Solutions



Aimil Ltd.
Instrumentation & Technologies

		stoppers (DTS0012) • Test sample (single syringe).	
DTS1070	70179090	Disposable folded capillary cells Primarily for the measurement of zeta potential with the Zetasizer Nano series, but can be used for size measurement with ZSP, ZS and S models only. Pack of 10 with 20 stoppers. Requires Zetasizer software version 7.02 or later	£ 120.00
PCS1115	70179090	12mm o.d. square glass cell with square aperture and cap For size and electrophoresis measurements with the Nano series universal dip cell, the Zetasizer 2000 and 3000 Series aqueous and non-aqueous 'dip' cells (DTS5001/5002), and the Zetasizer μ V.	£ 88.00
DTS0012	90279090	12mm o.d. square polystyrene cuvettes Pack of 100 with 100 stoppers for the Nano series, Zetasizer 1000/2000/3000 series, HPPS and Zetasizer μ V	£ 90.00
ZEN1002	90279090	Universal 'dip' cell kit For use with samples in aqueous and non-aqueous, i.e. non-polar dispersants such as hydrocarbons. Compatible with PCS1115 cuvettes. Compatible with all Nano series systems that measure zeta potential.	£ 1,950.00
XXXX		PC as per Tender Specifications.	Included
		Ex-Works, U.K Price	£ 42,208.00
		Special Institutional Discount @	£ 13,011.00
		Net Ex-Works, U.K. Prices After Discount	£ 29,197.00
		Add Packing, Forwarding, Freight & Insurance	£ 500.00
		C.I.P. New Delhi Airport Prices	£ 29,697.00

QUOTATION FOR CMC AFTER THE EXPIRY OF 5 YEAR WARRANTY

P/No.	Description	Qty	Price in INR
XXXX	CMC Charge for 6 th year (Without Consumables)	01	Rs. 80,000.00 (GST Extra @ 18% or as applicable)
XXXX	CMC Charge for 7 th year (Without Consumables)	01	Rs. 1,00,000.00 (GST Extra @ 18% or as applicable)
XXXX	CMC Charge for 8 th year (Without Consumables)	01	Rs. 1,25,000.00 (GST Extra @ 18% or as applicable)
XXXX	CMC Charge for 9 th year (Without Consumables)	01	Rs. 1,37,000.00 (GST Extra @ 18% or as applicable)
XXXX	CMC Charge for 10 th year (Without Consumables)	01	Rs. 1,37,000.00 (GST Extra @ 18% or as applicable)

Note: CMC will cover all electronic parts except consumables like standards, cuvettes etc. (prices of which already mentioned in main quote)

Parthaprasad Chatto
 Dr. Parthaprasad Chatto, M.D., Ph.D.
 Professor
 Department of Biochemistry
 All India Institute of Medical Sciences
 New Delhi-110 029, INDIA



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OPTIONALS ITEMS			
PART NO.	HSN Code	DESCRIPTION	PRICE in GBP
DTS1070	70179090	Disposable cuvettes primarily for the measurement of zeta potential with the Zetasizer Nano series, but can be used for size measurement also. Pack of 10 with 20 stoppers.	£ 120.00
DTS0012	90279090	12mm o.d. square polystyrene cuvettes, pack of 100 with 100 stoppers for the Nano series	£ 90.00
ZEN2112	90319000	Low-volume quartz batch cuvette for size and molecular weight measurements for use with the Zetasizer Nano series	£ 625.00
DTS1235	38220090	Zeta potential transfer standard, 1 box of 10 syringes Note: This is not a primary standard and is only supplied with a generic measurement result. Although each batch is tested to ensure it is within specification, a certificate containing the batch number of the sample is not supplied	£ 90.00
PCS1115	70179090	12mm o.d. square glass cell with cap for size and electrophoresis measurements for the Nano series universal dip cell, the Zetasizer 2000 and 3000 Series aqueous and non-aqueous 'dip' cells (DTS5001/5002), and the Zetasizer μ V. With square aperture and cap.	£ 88.00
ZEN1001	90279090	MPT-2 Multi- purpose titrator supplied as a separate unit MPT-2 Multi- purpose titrator for the automation of zeta potential as a function of pH, conductivity or additive concentration Materials in contact with sample: PTFE silicone, polycarbonate, polypropylene, gold	£ 6,910.00
DEG0003	90279090	Auto-degas unit for the MPT-2 Compatible with all MPT-2 units. Automatically degasses all three titrants. Operation is completely automatic. Supplied with universal power supply and power cable.	£ 2,850.00
ZEN1020	90279090	Zeta Potential Surface Zeta Potential cell kit For the measurement of zeta-potential of solid surfaces e.g. silica, PEEK. Includes: Zeta potential surface zeta potential cell with palladium electrodes, Cell height alignment jig, Cell holder gluing jig Compatible with all Zetasizer Nano series systems capable of making zeta potential measurements. Note: Requires software version 6.30 or later	£ 3,610.00

Ph...
 Dr. Parthaprasad Chattopadhyay, MD, Ph.D.
 President
 Department of
 India Institute of
 New Delhi-110 029, INDIA



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Instrumentation & Technologies

ZEN1010	90279090	High Concentration Zeta Potential Cell Kit. Version 6.20 or later is required to use this cell. Software on CD included.	£ 2,860.00
CPS0125	90279090	Zetasizer Nano ZS/ZSP Microrheology feature key Enables DLS Microrheology measurements by tracking the motion of dispersed particles of known size in a sample, to determine the rheological properties (Linear viscoelastic moduli and complex viscosity). Includes a dedicated microrheology SOP, which guides users through the set up of an appropriate tracer particle type for particular sample.	£ 3,260.00

Note: No additional discount will be applicable on optional items.

6/9/12
Dr. Parthaprasad Chattopadhyay, MD, Ph.D.
Professor:
Department of Biochemistry
All India Institute of Medical Sciences
New Delhi-110 029, INDIA

