



Ref. No. RMLIMS/MM(eq)/2019-20/5635-

Date: 04.02.2020

**Notice for inviting comments/objections for purchase of CO Oximeter and Zetasizer on Proprietary Basis**

The Institute is in process of purchase of **CO Oximeter** on proprietary basis submitted by the firm and user department in favour of **M/s Masimo Corporation**, wherein it has been certified and confirmed that **CO Oximeter** is proprietary product of **M/s Masimo Corporation, Irvine, California 92618, United States of America 92618 USA** and **Zetasizer** on proprietary basis submitted by the firm and user department in favour of **M/s Malvern Panalytical Ltd.,** wherein it has been certified and confirmed that **Zetasizer** is proprietary product of **M/s Malvern Panalytical Ltd., Enigma Business Park, Malvern, Worcestershire, U.K. WR141XZ.**

The above documents with specifications will be uploaded on e-tender portal i.e. **[www.etender.up.nic.in](http://www.etender.up.nic.in)** from 05.02.2020 for open information to submit online objections, comments, if any from any manufacturer regarding proprietary nature of **CO Oximeter** and **Zetasizer** within 16.02.2020, failing which it will be presumed that any other vendor is having no comments, objections for above purchase on proprietary basis and case will be decided on merits.

The above details will also be available on our website **[www.drrmlims.ac.in](http://www.drrmlims.ac.in)** for reference only. The objections/comments will be accepted On-Line only through above e-tender portal within above stipulated period.

Director

DR. RAM MANOHAR LOHIA INSTITUTE OF MEDICAL SCIENCES,  
VIBHOOTI KHAND, GOMTI NAGAR, LUCKNOW

PROPRIETARY ARTICLE CERTIFICATE

It is certified that the items required should be purchased from

AIMIL LTD

who are the sole manufacture/agent of the sole manufactures

M/S MALVERN PANALYTICAL LTD.

Similar items manufactured by other firm (s) shall not be suitable for our purpose for the

following reasons :-

Zeta sizer - Ultra since it is the only  
product which provides concentration of nanoparticles along  
with qualitative assessment of nanoparticles (in term of  
appropriate size) with Multi angle Dynamic light scattering.

Requisition No.:

Department :

Dated :

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Signature of indenter

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Designation & Signatures  
of Head of Departments

N. B. :- The indenter before recording the above certificate should satisfy himself  
that the article is genuinely of Proprietary nature manufactured  
under patent laws.





To Whom it may concern.

Date of Issue: 03/01/2019

**Re. Letter of Unicity/Proprietary Certificate**

This letter certifies that the Zetasizer Ultra [ZSU5700]\* and Zetasizer Pro [ZSU5800] are proprietary products of Malvern Panalytical Limited UK and that we are the sole manufacturer of these products; no other party can supply or manufacture these products.

Both products use the techniques of dynamic light scattering and electrophoretic light scattering to measure the size, mobility and zeta potential of particles in dispersions and is, at the date of issue, unique for the following characteristics and/or performances:

- \*MADLS® - Multi Angle Dynamic Light Scattering ability to perform multiple DLS measurements at multiple angles and solve the complex correlation function to produce a single DLS result independent of angle or concentration (assuming within measurable range). This gives high resolution i.e. the ability to resolve distributions up to 2:1 (standard DLS is not consistently able to resolve at 3:1). Results are reported by Intensity (at 173 degrees) and as angular independent Volume distributions.
- \*MADLS Particle Concentration - ability to measure particle concentrations using a calibration free, ensemble approach, based on the light scattering intensity of individual size modes to provide a measure of particle concentration of the sample modes in particles/mL.
- High and Low Frequency Electrophoresis (M3-PALS) an apparatus able to determine the zeta potential distribution of a particle dispersion contained in a cell/cuvette free of the effects of electro-osmosis.
- Adaptive Correlation - the ability to automatically and dynamically classify correlation sub runs on the fly into steady state or transient events. This has multiple advantages: speeds measurement up two to three fold, gives more stable and repeatable results typically with less sample preparation, increases measurement precision five fold and increases the sensitivity to small amounts of large material by treating transient events separately to those more representative of the sample. Adaptive Correlation requires no assumptions to be made by the user, works across all size ranges measurable and at all angles measurable with no data rejection.
- Option to utilise Laser Doppler Electrophoresis Using a Diffusion Barrier to minimise sample degradation, decrease volume requirements to 20µl and increase robustness of measurements in high conductivity media.
- \*Low volume Capillary Sizing Cell - reduces sample volume to 3 µL but in a high quality disposable glass capillary cell, and increases upper measurable size limit to 10 µm (latex) without the need for density matching of the sample dispersant to particle density.
- Optical Filter Wheel (Patent Pending) with Integrated Narrow Band Filter and DDLS polarisers - this means the narrow band filter is not permanently installed, so it can be user selected to remove

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**Malvern  
Panalytical**

fluorescence when present on a sample by sample basis without suppressing signal when the sample does not fluoresce. The horizontal and vertical polarisers allow collection of particle size data in Backscatter and therefore perform DDLS measurements that may highlight such physical phenomena as rotational diffusion or asymmetry in samples.

- Deep Learning AI – Gives real time size data quality analysis and advice on how to use the data or corrective action for the sample. Supports novice users with expert data analysis and advice.

Patents Granted:

High and Low Frequency Electrophoresis (M3-PALS)

- EP1154266
- US7217350
- JP04727064

Light Scattering Measurements using Simultaneous Detection

- EP2235501
- CN102066901
- JP2011523451
- US20090251696

Diffusion Barrier Method

- WO2012083272A1
- JP2013546003

Patents Pending:

MADLS

Adaptive Correlation

Low Volume Capillary Cell

DDLS Automation/Filter Wheel

\*=Ultra only

On behalf of Malvern Panalytical Ltd.

Darrell Bancarz – Product Manager - Nanomaterial



## Specifications for Zetasizer

The instrument should measure particle size, zeta potential and Particle concentration in a single measuring unit. The system should simultaneously detect scattering at Multiple angle to ensure angle-independent Size measurement. The instrument should have at least 3 angles. There should be a provision for Automated size and zeta potential Measurement as a function of pH or additive concentration.	
1.	Temperature control range 0°C to 120°C.
2.	The system must use an avalanche photodiode detector as standard.
3.	The instrument should have temperature and time based trend analysis facility.
4.	Laser: Beam of 632.8nm with max Power output 10mW or below.
5.	System should be designed to insert Fluorescence filter in detector path to block the fluorescence emission, in order to improve signal to noise ratio.
6.	In-built user selectable horizontal and vertical polarizer in detector path to make depolarised DLS measurements
7.	Laser Safety: The laser safety should be complaint with class 1.
8.	Customer training should be provided at the customer site by a certified technical scientist/engineer focusing on basic operation and maintenance. Minimum six hands on trainings in the installed instrument in first year should be provided by firm and each of the training should be of minimum two days.
9.	Vendor should offer technical support and field applications/sales/service support to answer technical questions, help review data, and give recommendations on how to troubleshoot results encountered with Nano Particle Size and Zeta Potential Analyzer experiments.
<b>Size measurements</b>	
10.	Size range :0.3nm - 10.0 microns (Angle independent)
11.	Minimum sample volume :5µL or less
12.	Concentration range: 0.1mg/ml, 15 kDa protein to 40% wt/vol
13.	Measurement time should be as fast as possible to enable understand kinetic studies.
<b>Size features:</b>	
14.	Scattering angle: The instrument should have ability to measure angular independent particle size using backscatter; forward scatter and side scatter angles.
15.	There should be ability to minimize multiple scattering by changing the measurement position as a function of changes in sample concentration.
16.	Expert advice facility in the software to assess and understand every measurement run the quality of the report
17.	Access to Raw data available to check the quality of the measurement
18.	Accuracy: Better than +/-2% on NIST traceable latex standard. Precision/Repeatability: Better than +/-2% on NIST traceable latex standards
<b>Zeta potential measurements</b>	
19.	Zeta potential range: > +/- 500mV
20.	Mobility range: > +/-20µm.cm/V.s
21.	Size of particles measurable: 3.8nm to 100 microns.
22.	The system should use Phase Analysis Light Scattering as standard.
23.	The vendor should provide disposable capillary cell including disposable electrodes must be available.
24.	Universal dip cell kit and glass cuvettes for measuring in organic solvents.
<b>Zeta Potential features:</b>	
25.	The vendor should provide disposable capillary cells to ensure lack of cross contamination.
26.	Separate measurement should not be required to determine the sign of the charge of zeta potential.
27.	Zeta Potential measurement should be done using a constant current mode.
28.	Ability to use minimum sample volume as low as 20 µl for zeta potential measurement.
<b>Particle Concentration</b>	
29.	Ability to give the concentration of particles : Concentration Range- $1 \times 10^8$ - $1 \times 10^{12}$ particles/mL


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<b>Software</b>	
30.	The software must be compatible with Windows XP, VISTA and Windows 7 operating systems. However, the latest software should be quoted.
31.	Data export must be available to word processing packages or spreadsheets
32.	Access to all measured data including correlation functions, fitted data points, residuals and all experimental parameters must be available and stored for subsequent examination and recalculation.
33.	The calculation of the cumulants mean defined in ISO13321 must be used
34.	The software upgradation should be free for life time.
<b>Others</b>	
35.	A touchscreen wall mountable all in one desktop with latest configuration, wireless mouse, wireless keyboard and computer table to be provided for proper installation of the instrument
36.	A vibration free granite top table with shelves optimized for the instrument must be provided

  
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