

Particle size 

Zeta potential 

Absolute molecular weight 

Zetasizer

nano ZS



ZS

The **ultimate** in desktop particle characterization

The new Zetasizer Nano ZS brings you the practicality of a maintenance-free system with the versatility to offer precision measurement for your laboratory's particle characterization needs.



Particle size

Non-invasive back scatter (NIBS[®]) technology takes particle sizing to new levels of sensitivity in the 0.6nm to 6 micron range. The new Zetasizer Nano ZS is the choice for accurate, reliable and repeatable size analysis including protein melting point determination.

- Proteins and polymer analysis
- Little or no dilution necessary
- Pharmaceuticals
- Nanoparticles
- Optoelectronics

Zeta potential

The new Zetasizer Nano ZS offers the highest ever sensitivity, accuracy and resolution of zeta potential. This is achieved by a combination of laser Doppler velocimetry and phase analysis light scattering (PALS) in Malvern's patented M3-PALS technique. Even samples of very low mobility can be analyzed and their mobility distributions calculated.

- Emulsion stability
- Formulation stability
- Water treatment
- Pigment performance
- Impurity determination



Molecular weight

Using static light scattering (SLS) and the classical Debye plot, the molecular weight of random coiled polymers up to 5×10^6 Da as well as globular polymers and proteins up to 2×10^7 Da can be determined without the necessity for multi-angle measurement.

- Protein and polymer characteristics
- Protein crystal screening
- 2nd virial coefficient determination
- Micelle structure
- Protein-ligand binding

How Simple?

- Unique maintenance-free zeta potential cell
- No alignment, calibration or maintenance required
- Zeta potential and size can be measured in the same cell
- Automatic cell recognition system

Power up the Zetasizer Nano ZS and launch the software

1

An automatic complete system self-check ensures that all components are ready for operation.



Fill the maintenance-free cell

2

The amazing low volume, folded capillary cell is the first ever for zeta potential which does not require cleaning. To eliminate cross-contamination, fill it, measure and, instead of cleaning, use a new one.



Load the cell

3

Simply insert the cell with its integral gold electrodes, close the lid and it's ready to go.



Run the measurement

4

From the menu, select the standard operating procedure (SOP) you need or set your own conditions and click the 'start' button.



View the results

5

Predefined reports make reading, comparing and analyzing the results straightforward. Remove the maintenance-free cell and you are ready to go again.



That's how Simple

Meeting **your** needs

At Malvern we strive for improvement in every instrument we design and produce. This process is made possible because we continually ask our customers what they think and what they need before turning those wishes into reality.

You asked for

We give you

Simple operation

Standard Operating Procedures (SOPs)
The use of SOPs ensures that measurements can be repeated using exactly the same parameters to give confidence in the result.

*Low volume sample measurement
(for valuable proteins and
biopolymer samples)*

A comprehensive range of low volume cells and a unique low volume autotitrator

*Size measurement at low
concentrations*

NIBS® (non-invasive back scatter) technology built in for increased particle sizing sensitivity and to make it possible to characterize proteins and polymers <1nm in size and with molecular weights as low as 1000Da

*Simplified sample preparation
– especially for emulsions*

Instruments which can analyze samples with little or no dilution

*Elimination of sample cross-
contamination and no need to
clean cell or electrodes*

Unique maintenance-free folded capillary cell. The world's first disposable zeta potential capillary cell

*Ability to measure zeta potential
in high salt systems and
non-aqueous media*

Patented M3-PALS (phase analysis light scattering) technology which allows operators to improve resolution as well as automating the process of measurement

*Compliance with regulatory
standards*

Compatibility with 21 CFR part 11 and all other current standards

Introducing the **unique** patented folded capillary zeta potential cell

First ever maintenance-free zeta potential cell. Simply use it for a single sample or series of experiments then, instead of cleaning it, use a new cell,

Gold electrodes for widest range of sample compatibility



Compact design for low volumes down to just 0.75ml

Consistent and stable field held at measurement point



The Zetasizer Nano ZS also accepts the **re-usable dip cell** which is required for non-aqueous applications - it can also be used for samples dispersed in aqueous media.

Automated titration and sample preparation with the MPT-2 Autotitrator

While zeta potential alone is often used to make comparisons between materials and formulations, measuring zeta potential as a function of pH, conductivity or concentration of an additive, provides much greater insight into the processes involved in stabilizing or flocculating disperse systems.



Using the MPT-2 autotitrator these measurements can be made automatically using samples of less than 3ml, which allows comprehensive analysis of even scarce biological materials.

Operation is fully automated and protocols can be specified as part of standard operating procedures.

Software to make it happen

The excellence of the Zetasizer Nano ZS hardware can only be fully realised with similarly advanced software. For an instrument of this refinement, the software design and development has to match its quality.

All support software for the Zetasizer Nano ZS has been programmed by Malvern Instruments not simply to operate the system but to enable you to get the best out of it – to bring it to life.

The software is designed to provide the functionality you need as well as the ease of use you want in a familiar Windows™ environment.

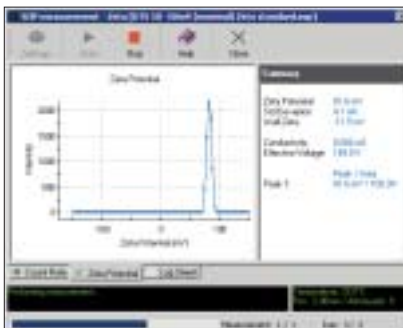
SOP creation



A 'wizard' is available to assist in the generation of standard operating procedures.

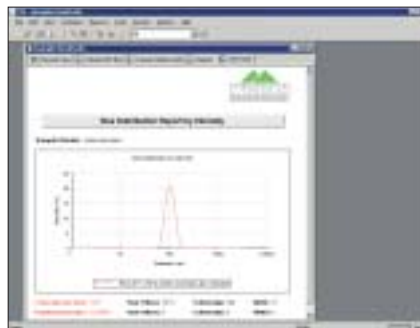
- fully automated operation – for ease of use
- SOPs – for repeatability between operators, systems and sites
- custom report generator – to meet every laboratory's requirements
- temperature trend analysis
- time trend analysis
- selected parameter trend analysis
- overplotting of results for direct comparison
- full range of statistical plots

Sample measurement



During data acquisition, status messages keep the operator informed of progress and an evolving distribution is displayed.

Reports



A range of reports are supplied to display distribution tables and result statistics. The report designer can be used to customise the contents of these reports.

Overview

Zetasizer nano ZS

Size, zeta potential and molecular weight measurement of particles, emulsions and molecules

Size measurement

Size range	0.6nm - 6 microns*
Minimum sample volume	12 microlitres
Concentration range	0.1mg/ml Lysozyme to 40%w/v*

Zeta potential measurement

Minimum sample volume	0.75ml
Maximum sample conductivity	200mS

MWt measurement

Molecular weight range	1×10^3 to 2×10^7 Da*
Minimum sample volume	20 microlitres
Minimum sample volume for automated measurement using titrator	3ml

Automated trend measurement

Standard software	Time and Temperature
Using optional MPT-2 autotitrator	pH, conductivity or additive

General specifications

Temperature range	2°C to 90°C
Condensation control	Purge facility using dry air
Laser	4mW He-Ne, 633nm
Product laser class	Class 1 compliant, EN 60825-1:2001 and CDRH
Size	320mm, 600mm, 260mm (W,D,H)
Weight	18kg

Options

50mW 532nm laser
Narrow band optical filter, 633nm or 532nm
Advanced data processing software
21 CFR part 11 operating mode software

* Sample dependent

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Zetasizer
nano ZS

Advanced technology made simple

distributor details

Malvern Instruments is part of Spectris plc, the Precision Instrumentation and Controls Company.

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