Litesizer™ 500 Specification Sheet

General

Parameters measured	6 (Size, zeta potential, molecular mass, A_2, transmittance, refractive index)
Temperature control	
Temperature range	0 °C - 90 °C
Standard accuracy	± 0.3 °C
Improved accuracy (optional)	± 0.2 °C at 0 °C, ± 0.1 °C at 25 °C, ± 0.3 °C at 90 °C
Ambient temperature range	10 °C – 35 °C
Humidity	35 % – 80 % non-condensing
Condensation control	Purge using dry air
Semiconductor laser	40 mW, 658 nm[1]
Laser warm-up time	6 min
Correlator	10 ns to 85 s, max. 248 channels
Dimensions D x W x H (weight)	460 mm x 485 mm x 135 mm (18 kg)

1. Specified wavelength range 655–661 nm

Size

Range	0.3 nm – 10 µm[1] (diameter)
Min. sample volume	12 µL
Sensitivity	
min. concentration (protein)	0.1 mg/mL (lysozyme)
min. concentration, fwd angle	1 mg/mL (lysozyme)
Max. concentration	50 % w/v (sample-dependent)
Accuracy	Better than ± 2 % on NIST traceable standards
Repeatability	Better than ± 2 % on NIST traceable standards
Measurement angles	3 (15°, 90°, 175°)
Measurement angle selection	Automatic or manual
Measurement duration	Automatic or manual
Filter optical density	Automatic or manual
Focus position	Automatic or manual
Analysis algorithm	NNLS using Tikhonov regularization, CONTIN

1. under laboratory conditions

Zeta Potential

Range	> ± 1000 mV
Min. sample volume	50 µL (sample viscosity-dependent)
Sensitivity	0.1 mg/mL (lysozyme)
Max. concentration	70 % w/v (sample-dependent)
Accuracy	± 10 %
Repeatability	± 3 %
Mobility range	10^{-11} to $2x10^{-7}$ m²/V.s
Size range	3.8 nm – 100 µm (diameter)
Max. sample conductivity	200 mS/cm
pH range	2 - 12
Signal processing	cmPALS
Cuvettes	Omega cuvette, Univette

Measurement angle	15°
Power setting	Automatic or manual
Measurement duration	Automatic or manual

Molecular Mass

Absolute sensitivity (toluene)	> 70 kcps (side-scattering)
Measuring range (mass)	980 Da – 20 MDa
Measuring range (particle size)	up to 40 nm (diameter)
Accuracy	± 10 %
Repeatability	± 5 %
Measurement duration	Automatic or manual
Lowest concentration limit	0.1 mg/mL (lysozyme)
Measurement angle	90°

Transmittance

Measuring time	10 s
Min. sample volume	15 µL
Accuracy	Better than ± 1 %

Refractive Index

Measuring range	1.28 - 1.50
Accuracy	Better than ± 0.5 % according to ISO 22412
Min. sample volume	1 mL

Software

One-page presentation	Input parameters, live signals and results on a single page
21 CFR part 11 software	Audit trail, customizable user management, electronic or hard copy signing
Analysis tab	Comparison of measurements from different experiments on single graph
Reporting	Template or customizable
Series measurements	Time, pH, temperature, concentration, measurement angle, focus, transmittance

Patents

cmPALS	EP2735870 / US9465006
Refractive index	EP3023770
n-comp	US9528933
Sample temperature control	AT516382

Quality Standards

ISO 22412:2017, ISO 13099-2:2012, USP 729
ASTM E2490-09, ASTM E2865-12, ASTM D4001-13