Why Buy a Nicomp® DLS System?

There are many reasons why your next DLS system should be a Nicomp System

WHY DO SO MANY CUSTOMERS BUY A NICOMP DLS SYSTEM?

Reason #1: The great data it generates. Dynamic light scattering (DLS) systems can be optimized for sensitivity or tuned down to improve reproducibility. The Nicomp system is designed for sensitivity.

Reason #2: The Nicomp algorithm is uniquely capable of determining when multiple peaks are present and can resolve peaks closer than any other DLS system (Figure 1).

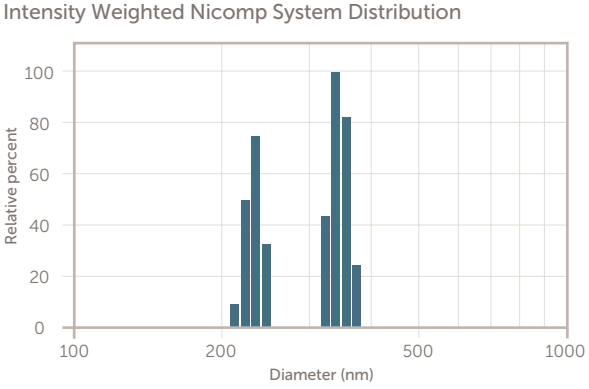


Figure 1. Bimodal 70–30% mixture of 220 and 340 nm PSL standards.

Reason #3: Access to algorithm setting to fine tune the measurement to your specific samples (Figure 2).

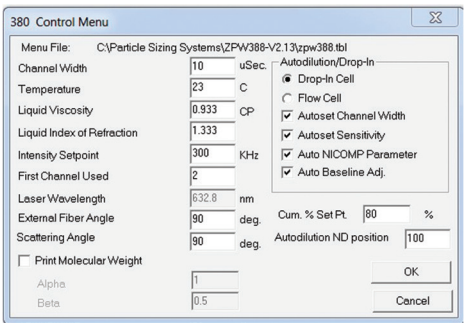


Figure 2. Optimize the algorithm to your sample.

Reason #4: Phase analysis light scattering (PALS) for high-sensitivity zeta potential measurements. Lowest cost of ownership — no disposable cells.

Reason #5: A wide range of options such as multi-angle goniometer, auto-dilution, and auto-sampling to make the measurements easier to perform.

WHAT ARE THE MAJOR BENEFITS OF OWNING A NICOMP DLS SYSTEM?

High-resolution Particle Size Analysis

- Unique Nicomp system algorithm

High-accuracy Zeta Potential Results

- PALS outperforms frequency analysis
- Dip cell electrodes fit standard disposable cells
- Accurate data at low electric field strengths, ideal for proteins and bio-molecules
- High-voltage cell for organic samples

Customize the System, Optimize Your Results

- Multiple lasers for different sample requirements
- PMT or APD detectors
- Fixed 90° or multi-angle goniometer option
- Adjust sensitivity, baseline, correlator channel timing, and Nicomp system algorithm settings to optimize results

Many different sample cells can be used to minimize sample volume, allow for multi-angle measurements, or keep cost of ownership low. The same sample cell can be used for both size and zeta potential measurement; just insert the dip cell electrodes (Figure 3).

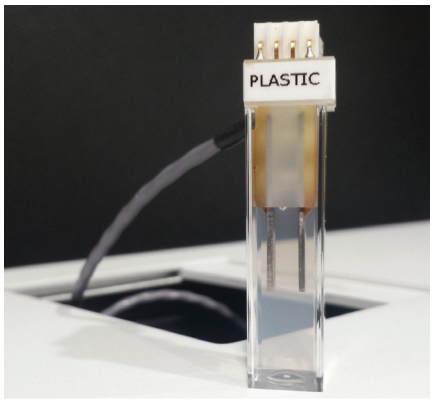


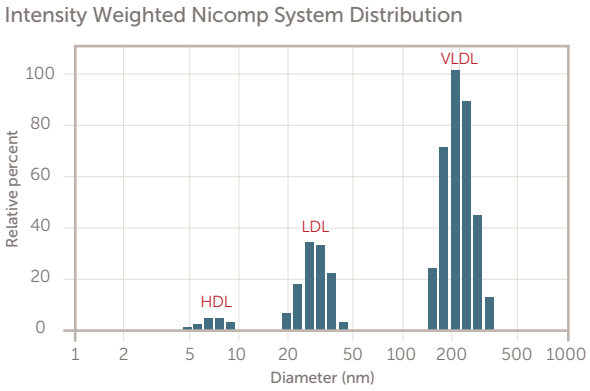
Figure 3. Zeta potential dip cell, gentle on samples and your budget.

Many customers keep buying another Nicomp system because they know this tool generates the best data they have seen. With over 30 years of experience designing, building, and upgrading the Nicomp platform we are happy to show you why this should be your next DLS system.

MORE GREAT RESULTS

Splitting Three Peaks

Cholesterol in blood can be in the form of HDL, LDL, and VLDL (in order of increasing size). The Nicomp system result shown in Figure 4 accurately split the three peaks with a single measurement.



Serum

Diameter	#1 — 7.0 nm	#2 — 29.3 nm	#3 — 217.5 nm
S. Dev.	1.1 nm (16.2%)	5.0 nm (16.9%)	45.4 nm (20.9%)
Percent	3.1%	24.4%	72.5%

Figure 4. The Nicomp DLS system accurately split the three peaks with a single measurement.

Splitting Peaks – Published Data

Several articles in peer reviewed journals confirm the ability of the Nicomp system to split bimodal peaks. One example is shown in Figure 5[1] — the sample consists of nanoparticles for drug delivery.

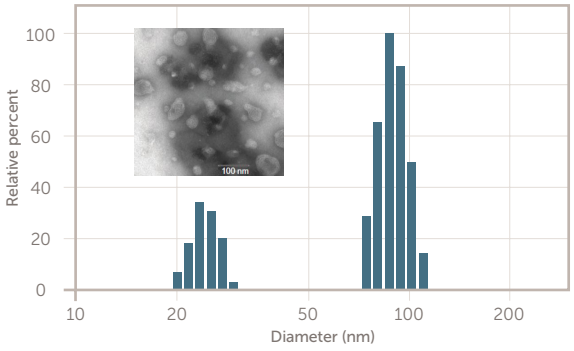


Figure 5. The Nicomp DLS system can split bimodal peaks.

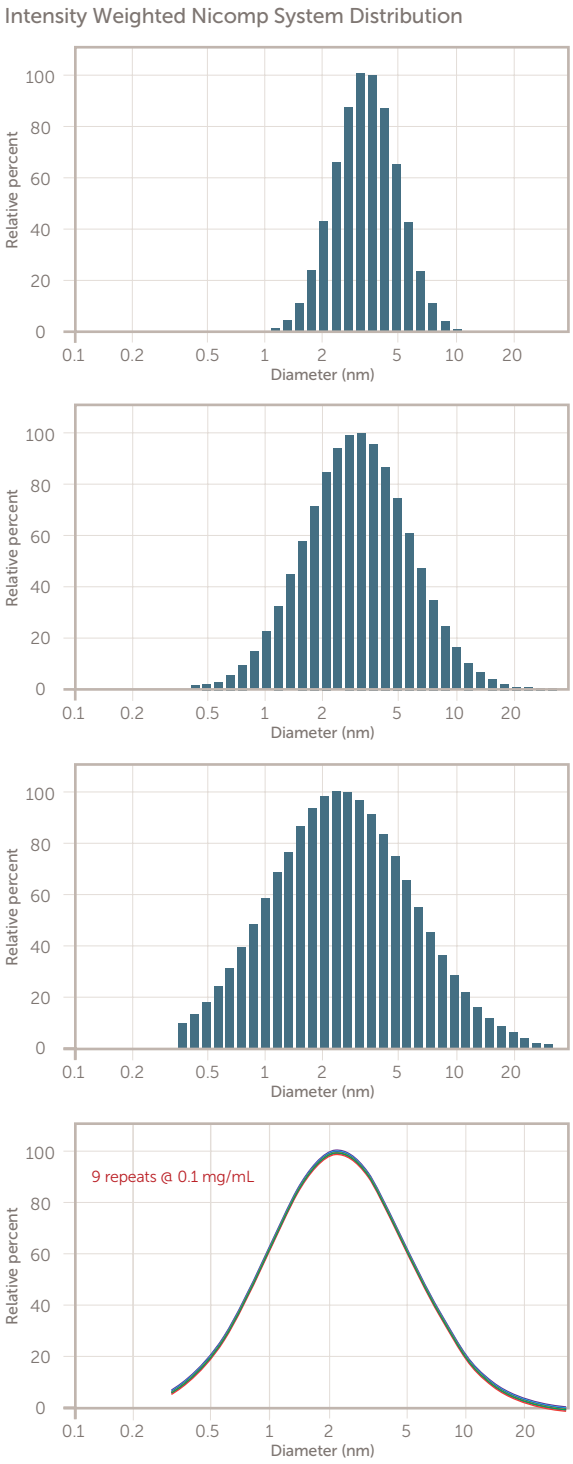


Figure 6. Sensitivity to 0.1 mg/mL lysozyme.

Sensitivity to 0.1 mg/mL Lysozyme

The Nicomp DLS system is capable of repeatedly measuring 0.1 mg/mL lysozyme. The mean diameter is the same at 10, 1.0, and 0.1 mg/mL as seen in Figure 6. Entegris Technical Note 0.1 mg/mL Lysozyme provides complete details showing how these measurements were made.

Sensitivity and Accuracy Below 10 nm

In Figure 7, a monomer supramolecular assembly shows a size of 1.7 nm (red). The dimer (blue) would theoretically have a length twice the monomer (3.4 nm) yet have the same width. The tetramer yields a measurement size of 5.9 nm (yellow). Measurement of these complexes of theoretical size demonstrates the Nicomp system's unique sensitivity and resolution for materials smaller than 10 nm. An overlay of all three structures demonstrates the Nicomp system's unique measurement capabilities in the size range of less than 10 nm.

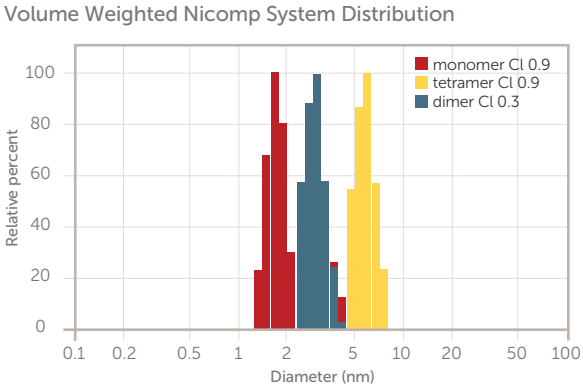


Figure 7. The Nicomp DLS system has unique sensitivity and resolution for materials smaller than 10 nm.

References

[1] Zeng, N. et. al., International Journal of Nanomedicine 2012:7.

FOR MORE INFORMATION

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