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Прибор Exoid для анализа размера, концентрации и заряда наночастиц

Tunable Resistive Pulse Sensing With the Exoid

For researchers wanting precise measurements of their nanoparticles in solution.

The Exoid is Izon's latest instrument for measuring the physical characteristics of nanoparticles in solution. Based on principles of tunable resistive pulse sensing (TRPS), the Exoid enables precise measurements of particle size, concentration and zeta potential, using a suitably sized nanopore that enables measurements within a defined size range. The uniquely high-resolution data that can be obtained using the Exoid enables you to compare your samples with confidence.



Measure Nanoparticles With Single-Particle Resolution

Using tunable resistive pulse sensing (TRPS), the Exoid measures nanoparticles one-by-one as they pass through a tunable nanopore, allowing you to obtain measurements of particle size and concentration, or particle size and zeta potential, on a single-particle basis. Unlike ensemble techniques, where larger particles can skew size measurements, the Exoid provides insightful, high-resolution measurements that allow you to detect important differences in particle size distribution. TRPS also has a unique capability, in that it can simultaneously measure particle size and zeta potential, representing a powerful approach to understanding the properties of particle dispersions.

Measure Particle Size

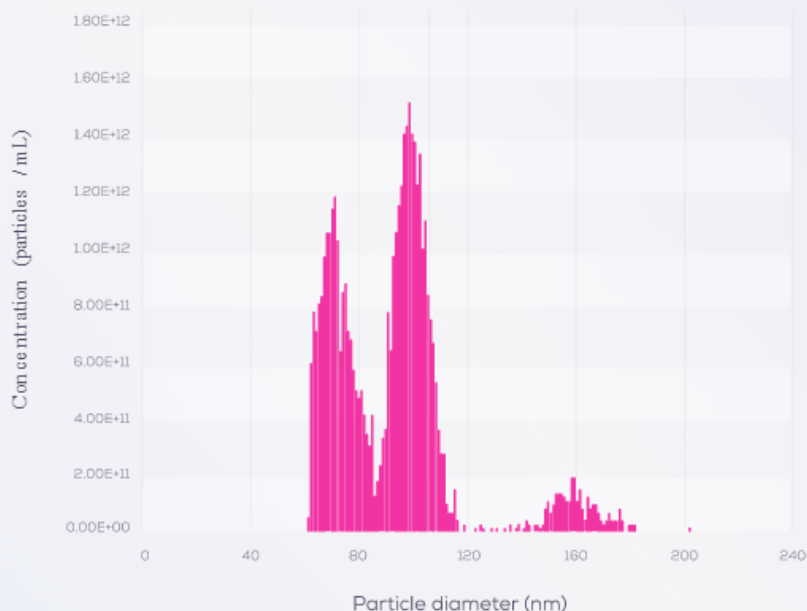
The high-resolution nature of TRPS allows you to see - in detail - the number-based particle size distribution of your samples.

Measure Particle Concentration

Compare the concentration of extracellular vesicles, verify the concentration of a dose, or detect changes such as particle aggregation.

Measure Zeta Potential

Measure the zeta potential and size of particles simultaneously, to gauge the effective surface charge and stability of individual particles in your sample.



The Exoid Provides a Standardised Approach to Measurement

Tunable Resistive Pulse Sensing (TRPS) measurements have in-built requirements which ensure a standardised approach to measurement:

TRPS requires the use of standards which are analysed under the same conditions as the sample. With the Exoid, measurements are taken using Izon-supplied calibration standards of known size and concentration, which are characterised against NIST particles.

The Exoid provides real-time indicators of the system's stability and

signal-to-noise ratio. Monitor the current, RMS value and blockade size in real time to ensure optimal running conditions are maintained throughout calibration and measurement.

The ability to test a blank buffer provides confidence. When the solution is devoid of particles, no blockades will appear. This allows you to proceed with confidence knowing that blockades are truly representative of particles in the sample.

For extracellular vesicle (EV) characterisation, pair the Exoid with qEV isolation for a rapid and standardised approach to EV isolation.

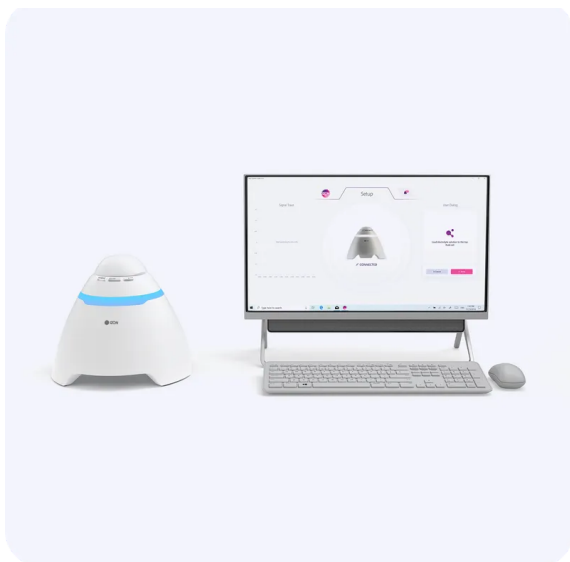
Characterise Your Samples Confidently With the Exoid

The Exoid gives you the ability to compare samples with confidence, as it provides a higher level of detail than can be obtained using other methods of nanoparticle characterisation. Based on principles of Tunable Resistive Pulse Sensing (TRPS), the Exoid can characterise a range of nanoparticles in solution. Particle size and concentration can be measured for particles in the size range of 40 nm to 11 μm , while size and zeta potential can be measured for particles in the size range of 40 - 2000 nm. Given the wide size range that can be analysed using different sized nanopores, TRPS has been adopted for use across a range of disciplines and industries. The Exoid is suited for use in the analysis of nanoparticles including exosomes and other extracellular vesicles, lipid nanoparticles, virus-like particles, and monoclonal antibody preparations.



What Can You Expect From the Exoid?

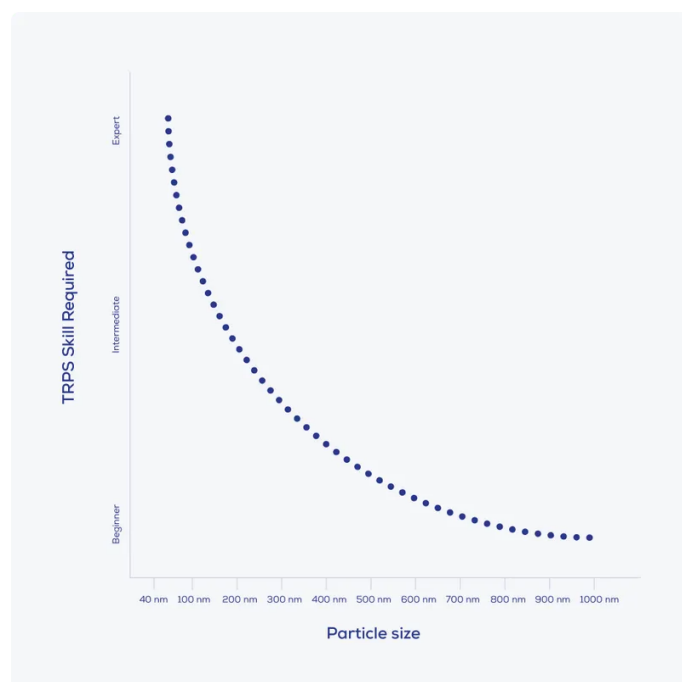
In addition to high-quality data, users of the Exoid can expect a user-friendly interface, automated data



processing, and a clean platform for data visualisation. As the Exoid is based on Tunable Resistive Pulse Sensing (TRPS), there is a learning curve that involves becoming familiar with how to adjust the voltage, pressure, and nanopore stretch in order to create optimal running conditions. Given you will be running thousands of particles through a small nanopore during calibration and measurement, blockages can occur - so you will also need to learn how to apply appropriate troubleshooting techniques. You can learn how to do this through training from an Izon support team member, who will provide training and guidance right from the start. We also have a range of training material at hand to support you along the way.

Skill Required for Insightful, Reliable Nanoparticle Measurements

Many physical characterisation methods on the market are rapid and require very little effort and skill. However, they do not have the resolving power required for complex samples containing particles of different sizes. Systematic, comparative studies have shown the low resolving capability of these techniques, and the relatively low repeatability compared to TRPS. In contrast, TRPS provides precision via its single-particle nature combined with the use of calibration particles and active monitoring by the user. Even though proper sample preparation, skill, and effort are required for TRPS measurements - particularly for the measurement of particles at the lower end of the size range - it's the only way forward if you want repeatable data on heterogeneous samples containing small particles.



Specifications of the Exoid TRPS Measurement System

Analysis range

40 nm to 11 μ m

Compatible electrolyte solutions

Include PBS,
HEPES, MES and
KCl

Footprint

300 x 300 mm



Concentration range

1E5 to 1E11 / mL (size
dependent)

Weight

10.8 kg

Height

250 mm

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