

**SPECIFICATIONS FOR PARTICLE SIZE ANALYZER FOR NANO RANGE**

1. Principle should be based on dynamic light scattering.
2. PC controlled system for measurement of Particle size, Zeta Potential and should have Molecular weight upgradability of dispersed particles/molecules in solution.
3. Must use digital correlator with minimum 2048 physical size channels or above.
4. Particle size measurement range: 1nm to 10 microns.
5. Concentration capabilities to measure particle size should be 0.6 ppm of 100nm to 10 microns with maximum 5% w/v.
6. Minimum sample volume for size measurement should be 4  $\mu$ L or lower.
7. Zeta Potential range should be +/- 300mV or more.
8. Capable to measure Aqueous/Polar Solvents and Oils, High Salts/ Non-Polar solvents based systems. The method of Phase Analysis Light Scattering to be used to improve repeatability of measurements of low mobility samples and with Constant current mode as a feature.
9. Size range for zeta potential measurement: 5 nm to 50 microns or above.
10. Minimum sample volume for Zeta measurement should be 30 $\mu$ L or lower.
11. Concentration capability to measure zeta potential should be upgradable to measure up to 40%.
12. Sample conductivity should be 250ms/cm or more.
13. Laser power should be 4mW or higher.
14. The instrument should be capable of measuring the scattering information close to 90 $^{\circ}$  to 13 $^{\circ}$ .
15. High sensitive Avalanche Photo Diode (APD) is desirable.
16. Temperature control range: 0 $^{\circ}$ C-120 $^{\circ}$ C.
17. System should have provision for automatically and dynamically classify correlation runs on the fly into steady state and transient events.
18. The software should be able to provide the result of particle size and zeta potential measurement and have in built diagnostic features like Size Quality Report and Zeta Quality Report with the ability to provide expert advice based on the raw data that has been accumulated. The raw data should be available later for analysis & use with other software modules.
19. Sample cells should include glass cuvettes (2 Numbers.), disposable cuvettes for particle size measurement (400 Numbers), and disposable cuvettes for Zeta potential measurement (200 Numbers).
20. Suitable computer to operate the system should be provided along with the system with UPS and Printer
21. Warranty – Three Years
22. Consumables for three years has to be quoted.
23. Training to be provided to two concerned staff.
24. The vendor should provide the list of installations for Nano particle size analyzers in India.
25. The vendor should also have application/service center in India for the supporting the system post sale.
26. The vendor should provide compliance statement to be provided pointwise showing/highlighting items part as quoted in the quotation for comprehensive technical comparison
27. The Prices should be quoted inclusive of all taxes except/ excise duty and FOR Jamia Hamdard basis. Jamia Hamdard will provide custom/excise exemption certificate