INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION

Powai, Mumbai 400076.

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Detailed Technical Specifications for Nanoparticle Tracking Analysis set up:

Nanoparticle Tracking analysis set up

Computer controlled System should be quoted to be used for Nanoparticle Tracking Analysis characterization of suspensions. To track the particles in Brownian motion per frame. It should report concentration in the range of 10^6 to 10^9 particles/ml and number size distribution of size in the range of 10 nm-1 µm or better.

S. No.	Specifications	Description
1.	**Size Range**	It should report intensity distribution and mean of size in the range of 10 nm-1000 nm or better.
2.	**Measurement Principles**	It should track movement of individually visualized nanoparticles in suspension and use real-time visualization of brownian motion and electrophoretic mobility for measuring size, concentration and/or zeta potential in scattering and fluorescence mode.
3.	**LASER Source**	At least 2 light sources should be quoted. They should be simultaneously built-in solid state lasers of following wavelengths and power. 1. Blue Laser (NTA); ≥ 45 mW 2. Red Laser (NTA); ≥ 40 mW The software should allow selection/changing of laser wavelength.
4.	**Detector**	Following detectors should be quoted 1. Highly sensitive CMOS Camera to track the particles movement.
5.	**Measurement Angle**	Should have at least ONE fixed measurement angle or more 1. Mid Angle: 90 degrees for NTA
6.	**NTA**	1. Temperature Control Range: 5° below Ambient up to 45°C. +/-0.2°C 2. Measurement Sample volume should be 500 µL or less. 3. Should be compatible with both non-corrosive and water. 4. Capable of working in both measurement modes (scattering & fluorescence). 5. Long Pass Filter with cut-off wavelength of 500 & 660 nm should be quoted. 6. Installed microscope should have 10X-20X magnification with minimum 0.4 value of numerical Aperture.
7.	**Consumables**	Cuvettes: - **1.** Disposable cuvettes or sample holders (if applicable): 100 Units **2.** Reusable Glass/Quartz or solvent resistant cuvettes or sample holders (if applicable): 3 Units
8.	**Standard Samples**	System should be provided with certified standard reference material for validation of size at the time of installation.

9.	**Software & Data**	**1.** Required software should be quoted to acquire, process, and analyse the raw data. **2.** Processed data should be reported in CSV, PDF, fcs, video file and Jpg format (Dot Plot and/or 3D Plot). **3.** Should indicate cleanliness of cuvettes and sample cells or sample holders with alarms and error messages. **4.** In-built database for parameter input, refractive index, particle absorption and viscosity. **5.** Overlay plots of up to 30 measurements for direct comparison. **6.** Post processing capability for changes in measurement parameters. **7.** Integrated time and temperature series study capability.
10.	**Computer**	Separate Suitable computer(s) should be provided to run the software to acquire data.
11.	**UPS**	3KVA Suitable UPS should be provided.
12.	**Warranty**	**5 years of warranty should be provided.**
13.	**Installation and service supports**	1. Supplier should clearly specify the after sales/service/application support capabilities. 2. Warranty of the system should be 5 years from the date of installation and should cover cost of spares and labor. 3. Should provide a comprehensive plan for on-site training, conducting workshops, software upgrade during warranty period. 4. Trained engineer & application support within India should be available for onsite training & support. 5. Supplier should provide SOP documents and free of cost training in first 3 months after installation to multiple users PLUS one onsite training session to multiple users every six months for the entire period of Warranty. 6. During the Warranty period, the supplier is required to visit at consignee's site at 2 times in the year commencing from the date of the installation for preventive maintenance of the Equipment/Stores. 7. The Supplier along with its Indian Agent and the CMC provider shall ensure continued supply of the spare parts for the machines and Equipment supplied by them to the purchaser for 7 years from the date when the company stops manufacturing of the unit. Company should ensure that spare parts will be available till 7 years from the date when the company stops manufacturing of the unit. 8. During the Warranty period, the supplier is required to visit consignee's site at least twice a year commencing from the date of installation for preventive maintenance of Equipment/Stores. 9. Should attend all breakdown calls within 24 hours of the receipt of information from the institute through fax/e-mail/mobile/sms, etc. 10. The equipment will be diagnosed with a problem within 72 hours of receiving the complaint and repaired within 4 weeks, failing which the warranty period will be extended by the number of days the instrument is non-functional post

		4 weeks. 11. Provide a detailed list of users and current installations of the system with similar set-up in India with contact details.