Chapter-8 of NIT No.1(PEQ)/05/17-18/PUR

Revised/Modified Specification for Micro Raman Spectrometer system

The proposed Micro Raman Spectrometer system must be able to record the Raman spectral analysis of liquid and solid sample using visible excitation at 532 nm and 785 nm

Details Technical Specifications:

1. Excitation wavelength: 532 nm and 785 nm
2. Spectral range: Instrument must be capable of producing Raman Spectra in the spectral range of 100 cm^{-1} (or less), to 3200 cm^{-1} (or higher)
3. Detector: CCD detector
4. System must have spectral resolution of 5 cm^{-1}or smaller for full range grating.
5. Instrument should be capable of rapid laser excitation exchange using laser, filter and gratings that are automatically identified by system software
6. The system should include one high-efficiency Rayleigh rejection filters and laser line filter for each excitation wavelength
7. All optical components must remain stationary during data collection to ensure data repeatability and alignment
8. Laser Power output: 50 mW (maximum) for 532 nm and 300 mW (maximum) at 785 nm
9. System should have auto align and optimization of input laser power. Self-validation using built-in internal reference sample. Built-in self-calibration and intensity correction using neon and white light sources.
10. The equipment should have facilities for validation with certified standard samples for Raman spectral analysis at laser excitationat 532 nm and 785 nm. Certified standard samples to be provided along with equipment.
11. The software must be able to collect Raman spectrum over the defined spectral range. Routine analysis operations must be able to automate using a Macro programming facility.
12. The system must be able to perform spectral database searching and display results in real time during data collection
13. A default library of 3000 spectra or more must be available for organic and inorganic compounds along with automated mixture analysis software for multiple component analysis.
14. Software must have feature for automated accurate characterization of the dark current on the CCD for background correction.

15. The software should have an excitation wavelength independent fluorescence correction feature during or after the Raman measurement
16. The system must be able to automatic calibrate for all accessible spectral ranges of the instrument for each grating and laser combination. Necessary calibrate standard should be provided
17. Standard sample holder should be provided for both powder and liquid sample measurement. For Liquid Sampling through approx.10 mm vials, or NMR tube holder or capillaries etc. and for solid samples, a dedicated Powder holder, film holder etc. may be provided.
18. Suitable note book of the specification: Memory size: 16 GB, Processor: 7th generation i7, Processor Speed: 3.8 GHz, Display: LED &13.3 inch, Hard disk type: SSD, Operating system: Window 10

Other terms & conditions

1. The warranty on the system must be at least three year after complete installation.
2. Installation and commissioning and training should be carried at the CSIR-NEIST, Jorhat
3. Service response time, turn-around time & up-time of the equipment should be clearly specified
4. List of users of the Instrument in last 5 years in India with contact address to be provided
5. Pre-installation requirements are to be stated clearly, and to be verified/surveyed by the supplier at the installation site.
6. The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of the features in the model of the equipment
7. Annual Maintenance Cost (AMC) terms & conditions should be provided
8. Availability of spares for at least 10 years

(Note : Other Specifications, Terms & Conditions remain same)