

**September 21, 2011**

**NIQ for XRF sulphur analyzer**

Sealed quotations are invited for the supply of XRF sulphur analyzer in the Department of Biochemical Engineering and Biotechnology. The technical specifications for the XRF sulphur analyzer are given below.

**Required Specifications:**

1. Energy dispersive X-ray fluorescence spectrometry with Direct X-ray tube excitation.
2. 8kV palladium / titanium target x-ray tube with programmable excitation conditions. Expected tube life along with guaranteed tube life should be specified.
3. High resolution sealed gas filled proportional counter detector with High sensitivity at 2.3 KeV is required.
4. Programmable beam filters for discriminating between Sulfur K radiations and other X-rays of higher energy.
5. System gain stabilization (energy lock). The system should have built in automatic energy calibration facility before every measurement for very good long-term stability.
6. Microprocessor control with pulse counting and pulse height analysis function
7. Removable sample cups with secondary safety window
8. System with NO requirement for gas purging facility will be preferred.
9. Chlorine interference: System should be capable of analysing Chlorine to correct for elemental interference.
10. Setting up standards: System should be supplied with long lasting and synthetically prepared fusion beads as setting up standards (SUS) for drift correction.
11. Vacuum formed display (VFD) and printer with graphics capability.
12. Software: The software should be capable of carrying out qualitative and quantitative analysis. Software capable to apply corrections for line absorption, Background, heavy metal absorption and mass absorption effects. Capable to give direct analysis, graphics, and calibration curves. Includes facility for sample routine operation, restandardisation. The software should necessarily have matrix correction and de-convolution of the energy spectra built into the basic

software. The software should also have a statistical process control module built into it. The software should have an auto-calibration, gain correction built into it without the need to regularly run setting up standard samples. The software should have in-built self diagnostics. Software should have the facility for automatic drift correction of calibrations using setting up samples to avoid recalibrations.

13. The software should be user friendly, should be pre-loaded with programs consisting of appropriate operating parameters and calibration data for Sulphur analysis
14. Safety features require are a) Detector protection in case of sample leakage or breakage of sample cell. b) Analyser should conform to International safety regulatory norms c) The instrument should be capable of automatically moving the sample cup away from the Analysis Head to minimise possible damage to X-ray Tube and Detector due to Sample leakage/spillage.
15. The instrument should be standalone system with built-in operating software.
16. Radiation shielding according to International norms.
17. Power requirements is 220-240V, 50HZ
18. Performance: The vendor should provide names and address of atleast five locations in India where the quoted model is satisfactorily performing for similar applications.

#### **Terms and conditions:**

1. Warranty should be 2 years.

#### **General instructions:**

1. Letter from the manufacturer specifically to quote for this tender is to be attached for authenticity of dealership/ agency and the dealer should be authorized service provider.
2. Vendor should get a fresh certificate directly from their product principal's clearly mentioning about warranty for one year of the systems to be delivered. The lowest quotation however, does not depend upon the warranty period.
3. Special discount/ rebate wherever admissible keeping in view that the supplies made for educational purposes in respect of the public institution of national importance may please be indicated.
4. Vendors should attach the relevant product brochures for the model quoted.
5. Validity of the quotation should be at least three months.
6. Vendors will do the installation and demonstration of the equipment at IIT Delhi premises without additional charges.
7. Taxes, terms and conditions should be clearly mentioned.

8. In the case the items are proprietary products of the company, a proprietary item certificate stating the same may be provided.
9. Specifications form should be similar to the given specifications sheet.
10. A compliance statement for required specifications should be attached.
11. Payment terms and conditions should be clearly mentioned. No advance payment is encouraged by IIT Delhi.
12. Firm MUST provide a compliance statement vis-à-vis specifications in a “tabular form” clearly stating the compliance and giving justification, if any supported by technical literature with clear reference of page number, paragraph or lines. This statement must be signed by the tendered for its authenticity and acceptance that any incorrect or ambiguous information found submitted will result in disqualification of the tender. The quotation should be complete in all respects

(as per IIT-Delhi rules).

**The Institute/ purchase committee has the right to accept or reject any bid or all quotations without assigning any reason whatsoever.**

Sealed quotations in separate envelopes of Technical and Commercial bids kept in one sealed outer envelope (super-scribed “Quotation for XRF Suphur analyzer”) should be addressed to **Dr. Preeti Srivastava, Department of Biochemical Engineering and Biotechnology, IIT-Delhi, Hauz Khas, New Delhi 110016** and should reach the **Department of Biochemical Engineering and Biotechnology, IIT-Delhi** by 1200 hrs by **October 12th, 2011**.