

# Generalized technical Specification for double beam Atomic Absorption spectrophotometer

The system should have minimum following specification:

- ❖ **Optics**-True double beam optics with aberration corrected Czerny-Turner monochromator mounting. Electronically double beam or Single beam or stockdale optics will not be accepted.
- ❖ High resolution grating with 1800 lines/mm and 300 mm or more focal length for high energy throughput
- ❖ **Wavelength Range**- Complete measuring wavelength range from 185 nm to 900 nm
- ❖ **Bandwidth selection**: 6-step or more bandwidth selection with automatic switching from **0.1 to 2 nm (0.1,0.2,0.4,0.7,1.0,2.0 nm)**
- ❖ **Detector**- High sensitivity Photo-Multiplier Tube (PMT) detector for complete wavelength range or Solid state Detector
- ❖ **Motorized turret**: 8 lamps or more turret, controlled through software with 2 lamps simultaneously lit, one for measurement and other for warm up for the next measurement
- ❖ In built power supply for minimum 2 numbers of High-performance boosted lamp/ Super lamp/EDL must be there in the system
- ❖ Dual background correction as standard - High speed dual frequency simultaneous measurement D2 background correction and high-speed Self Reversal background correction.
- ❖ **System must be supplied with 100 mm Air-C<sub>2</sub>H<sub>2</sub> solid Titanium burner as standard for automatic ignition and extinction of flame**
- ❖ High efficiency nebulizer with chamber made of engineering plastic, Platinum-Iridium orifice and Ceramic impact bead resistant to strong acids including HF Fully computerized gas flow control system with automatic setting of optimum fuel and oxidant flow rates
- ❖ Automatic/computer controlled burner height adjustment
- ❖ **System must provide PERFORMANCE GUARANTEE: Greater than 0.7 abs for 5 mg/L copper solution** with an RSD of less than 0.5%
- ❖ All the safety functions must be provided as standard including Leak Check; Flame Monitor; Gas Pressure Monitor; Interlock for wrong burner head use; Auto switch-over between Air-C<sub>2</sub>H<sub>2</sub> / N<sub>2</sub>O-C<sub>2</sub>H<sub>2</sub> flame with flow rate monitoring using optical sensor; Drain Tank Level Monitor, Automatic flame extinction during power sudden power interruption, Vibration sensor for auto flame extinction; Internal fan stop sensor and flame retardant body
- ❖ **Automatic Gas flow Control**:  
The system must have automatic searching for optimal fuel gas flow rate which optimizes the gas flow rate by measuring the changes in absorbance between a blank and a standard sample. The difference between the two must be displayed on the screen. The gas flow rate achieving the highest sensitivity must be detected and this value must automatically set as the gas flow rate value.

- ❖ **Software operation** on Windows 10 Professional for complete instrument control, data acquisition and processing Software includes strengthened QA / QC functions; 21CFR compliance; Hardware Validation functions and Comprehensive data management system as standard
- ❖ **Single Hollow Cathode Lamps for elements Cu, Pb, Hg, Zn, Ni, Mn, As and Cd** must be supplied along with the system
- ❖ **Hydride vapour generator: party must offer continuous flow Hydride vapour generator along with main system.** Used with the AAS, Hydride vapour generator permits therapidand accurate quantitation of elements such as As, Se, Sb, Sn, Te, Bi and Hg at several-ppb levels.
- ❖ **Specification:**
  - Measurement method: continuous flow
  - Sample consumption: 0 to 7 mL/min, variable
  - Reagent consumption: 0 to 2.5 mL/min, variable
  - Atomizer: Heated absorption cell (heated by Air-C<sub>2</sub>H<sub>2</sub> flame in standard system)
  - Carrier gas: Ar pressure: 0.32 MPa, consumption: 70 mL/min
  - Power requirements: 240 VAC, 50/60 Hz
  - Absorption cell, Reagent bottles, gas hose, drain tube, etc. must be supplied with Hydride generator as standard
- ❖ **All Pre installation requisites (PIR) are to be supplied by the vendor.**
  - Utilities required for AAS operation like Branded latest PC & laserjet Printer, Exhaust hood assembly, Double stage SS C<sub>2</sub>H<sub>2</sub> Regulator, SS Ar Regulator, one time filled Acetylene Gas Cylinder, Ar Gas cylinder, Oil free air compressor, 5 KVA online UPS with 30 minutes backup
- ❖ **Warranty must be 12 months from the date of installation.**
- ❖ Installation & training should be provided at our lab free of cost
- ❖ Delivery must be within 06 - 10 weeks after placing of Purchase order

Note: Name of the company:- Shimadgu.

