



भारत सरकार - राष्ट्रीय कृषि आनुवंशिकी एवं सूक्ष्मजीव विज्ञान संस्थान

ICAR - NATIONAL BUREAU OF AGRICULTURALLY IMPORTANT  
MICROORGANISMS

एन.बी.आई.एम. संस्थान, माऊ नथ भंजान, माऊ (उ.प्र.) - 275103

Vill & Post: Kusmaur, Mau Nath Bhanjan, Mau (UP)- 275103

Tel: (0547) 2530080, FAX: (0547) 2530381,

E-Mail: [ao.nbaim@icar.gov.in](mailto:ao.nbaim@icar.gov.in), (Web): [www.nbaim.org.in](http://www.nbaim.org.in), [www.mgrportal.org.in](http://www.mgrportal.org.in)



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## CORRIGENDUM

Subject: - Correction of Specification for Atomic Absorption Spectrophotometer (AAS) in open tender with Tender ID 2019\_DARE\_428740\_1

Kindly, consider the following specifications for Atomic Absorption Spectrophotometer with accessories and compatible stabilizer instead of the earlier one due to some typographical errors-

### Specifications:

1. Spectral range: 190 to 900 nm with automatic changeover/ programmable between flame and furnace mode. Deuterium for flame & D2 & Zeeman background correction for graphite furnace
2. *The slit width should be in range from 0.2 to 1 nm or better*
3. Optics : Czerny Turner Type/ Ebert Fasty Monochromator with Holographic Diffraction grating used with dual blazed and ruling density [RLD (Reciprocal Linear Dispersion) 1.6 nm/mm] or Better
4. Detector : Photo Multiplier Tube / solid state array detector
5. Holographic grating with 1800 lines/mm
6. Highest safety standard with complete sensor control
7. Automated height adjustment of the burner head
8. The system should be integrated for both Flame and Furnace with built in Atomizer and can be controlled through software
9. Scope of elemental analysis : As, Ca, Na, Co, Cu, Cd, Cr, Ni, Fe, Mg, Mn, Hg, Zn, Pb, Si& B
10. Instrument should be sensitive enough to detect trace concentrations of element in ppm to ppb
11. Flame System
  - (i) Burner: Universal Titanium burner for Air-Acetylene and Nitrous Oxide-Acetylene flames with fully inert carbon filled PPS spray chamber.
  - (ii) Three slot burner head for analysis of samples having high concentration of dissolved solids
  - (iii) The spray chamber design should be efficient enough to minimize carbon built up during fuel burning and problem of burner blockage during analysis of samples having high concentrations of salts, carbohydrates etc.

- (iv) Programmable switching between Air/Acetylene & Acetylene/Nitrous Oxide intakes.
  - (v) The Nebulizer should be made up of corrosion resistant material preferably Pt/Ir or Pt/Rh alloy or inert plastic
  - (vi) There should be provision of deuterium background corrections for removing any spectral interference
  - (vii) Fully safety interlock including pressure sensors on both line
  - (viii) Power failure protection
  - (ix) Flame ignition should be automatic
  - (x) *Lamp Support: Minimum eight lamp turret with automatic alignment and computer controlled lamp selection for both flame and furnace.*
12. Graphite Furnace System is required for precise detection of elements in trace quantity, the system should support following features:
- (i) Automatic as well as programmable switching between flame mode to furnace mode
  - (ii) System should have mechanism for removal of background noises created due to Zeeman splitting.
  - (iii) *Heating temperature of graphite furnace should be equal to or more than 3000°c*
13. Instrument should be supplied with automated hydride generation system for analysis of arsenic, selenium, antimony, mercury etc.
14. Computer controlled operations like burner movement (Height adjustment, rotation etc.)
15. Standard accessories to be supplied:
- i) Acetylene, Nitrous oxide and argon gas cylinders with regulators
  - ii) Cylinder should have explosive certification
  - iii) Two filled cylinder for each gas
  - iv) Air compressor (oil free) and air filters
  - v) Moisture trap circulating refrigerated chiller
  - vi) Spares and consumable for two years operations
  - vii) Exhaust fume hood (Stainless steel)
  - viii) Inert Centrifugal blower
  - ix) Double stage gas pressure regulators with stainless steel diaphragm, for ultra-high purity grade gases each for acetylene, nitrous oxide and argon with necessary SS tubing and fittings for connecting these to gas Cylinders
  - x) Extra gas pressure regulators to be supplied one each
16. Spare one set of hollow cathode lamps: Si, As, Ca, Na, Co, Cu, Cd, Cr, Ni, Fe, Mg, Mn, Hg, Zn, Pb& B
17. Graphite tubes minimum 10 sets to be supplied
18. System should have option to include auto sampler.
19. Power Requirement 220-240 V, 50 Hz
20. Data processing unit with at least Intel Core i5 processor , with RAM of 8 GB, 2TB of storage, monitor and required software for AAS operation and data analysis
21. Provision for future upgradation should be provided
22. Quality Certification: System should have EU, CE and ISO certification
23. Original brochure (no web printed) with technical details should be attached with quotation
24. Provide list of installations at various labs of ICAR, CSIR, DST, DBT etc.
25. 15 KVA online UPS with minimum of 30 min back up to be supplied

26. NIST (National Institute of Standards and Technology) traceable standards for each element should be supplied separately 100 ml (1000ppm) each
27. **Warranty: 2 years and more, onsite**

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**(Sanjay Kumar Goswami)**  
Administrative officer