



Indian Institute of Technology Kanpur

Advanced Center for Materials Science

Enq. No.: ACMS/ AU/ 2012-13/ E-8

Enquiry Dated: March 02, 2013

Closing Date: March 18th, 2013

ACMS requires the quotation for spark/arc type Optical Emission Spectrometer (OES) complying with or better than all of the specifications mentioned in **Appendix A**. The OES should be capable of quantitatively analyzing chemical compositions of various ferrous and non-ferrous alloys. It should be a floor type model attached with a computer to control the operation of the unit and get the reading of the analysis. The closing date for the above item is **March 18th, 2013**.

The prospective suppliers are required to send quotation in two parts in sealed envelopes, as “Technical Bid” and “Financial Bid”. The Technical Bid should contain detailed technical specification of the product being offered and should not mention any prices. The Financial Bid should include the detailed price quotation clearly including the cost of the equipment, taxes, service charges if any, shipping and handling charges. The two separate and sealed envelopes should be clearly marked appropriately as “Technical Bid” and “Financial Bid”.

Terms and Conditions:

1. Maximum education discount, if any should be offered
2. Validity of quotation should be at least for 60 days
3. Prices should be on CIF and FOB separately (if imported)
4. Prices should include the installation and training cost
5. Warranty should be for at least three years after installation
6. Normal payment terms for the Institute will be applicable (90% on delivery of the items and the remaining 10% after satisfactory installation/ inspection)
7. Quotation should carry proper certifications like agency certificate, proprietary certificate, etc.
8. An undertaking that the vendor will supply all the spares and services for the equipment for at least 5 years from the date of commissioning
9. Delivery must be within 6 months (updated March 7th, 2013)

Kindly send the Technical and Financial bids in sealed envelopes latest by 18th March 2013 to:

Dr. Anish Upadhyaya
Head, Advanced Center for Materials Sciences
IIT Kanpur, U.P. 208016, India.
e-mail: anishu@iitk.ac.in

Appendix A

Technical Specifications for Optical Emission Spectrometer

Sr. No	Parameter	Required Specification ^{1,2}
1.	Description	One floor type model of spark/arc-type Optical Emission Spectrometer for chemical analysis of metals and alloys in solid state. The OES should have an integrated display to read the status of the analysis and should be controlled with a computer for its operation and analysis.
2.	Model Name	Clearly mention make, model and model number of the equipment being offered.
3.	Detectors and Optics	<ul style="list-style-type: none"> • The unit should contain at least 10 CCD detectors to cover the entire spectrum of interest • Minimum 2000 pixels per CCD • Minimum effective wavelength range of 160-670 nm • Minimum focal length of 300 mm • Multi-optical system with separate chamber for UV and Visible range is desirable for better accuracy • Gratings should have minimum 2400 grooves /mm
4.	Spark Source	<ul style="list-style-type: none"> • The OES should have solid state spark source • Spark source should be stabilized against fluctuations in the power • The electrode should be easily removable for regular maintenance
5.	Spark Stand	<ul style="list-style-type: none"> • The OES should have compact and in-built spark stand • The design of the stand should be such that samples of various geometries can be tested
6.	Testing of Small Samples, wires or rods	<ul style="list-style-type: none"> • Supplier should quote for separate attachments for testing small sized samples, wires and rods of diameter from 1mm to 10mm • The OES should also be able to test sheet metal samples of 0.5 mm thickness
7.	Factory calibration	The OES should come with factory calibrations for ferrous alloys as well as alloys based on Al, Mg, Ti, Ni, Cu and Co. Factory calibrations should be provided for the various alloys and elements to be analyzed in them as listed in rows 8 to 14 below. In addition, optional quotations should also be provided for alloys based on W, Sn, Zn, Zr, Ag and Au matrices.
8.	Iron Based alloys	<ul style="list-style-type: none"> • Low carbon, medium carbon and high carbon steels • Low alloy and high alloy steels • Stainless steels • Tool steels • Cast iron • The elements to be analyzed are: C, Si, Mn, Cr, Ni, Mo, P, S, Al, Co, Cu, Nb, Ti, W, V, Sn, Pb, As, Mg, Zr, Bi, B, Ca, Ce, Ta, Zn, Sb, La, N and Sr
9.	Aluminum based alloys	<ul style="list-style-type: none"> • Cast as well as wrought Al-alloys • Elements to be tested in Al-alloys include Si, Mg, Cu, Fe, Mn, Ni, Cr, Zn, Ti, Ag, Ba, B, Be, Ca, Bi, Cd, Li, Na, P, Pb, Sb, Sn,

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		Sr, V, Zr, Co, Ga, Ce, In, La
10.	Magnesium based alloys	<ul style="list-style-type: none"> • Cast as well as wrought Mg-alloys • Elements to be tested in Mg-alloys include Al, Si, Mg, Cu, Fe, Mn, Ni, Cr, Zn, Ti, Ca, Bi, Cd, Li, Sn, Sr, V, Zr, Co, Ce, Nd, Pr
11.	Titanium based alloys	<ul style="list-style-type: none"> • Cast as well as wrought Ti-alloys • Elements to be tested in Ti-alloys include Al, C, Si, Cu, Fe, Mn, Ni, Cr, Zn, Ca, Sn, Sr, V, Zr, Co, Nb, Mo, Pd
12.	Ni-based alloy	<ul style="list-style-type: none"> • Cast as well as wrought Ni-alloys • Elements to be tested in Ni-alloys include C, S, Mn, P, Cr, Fe, Mo, V, Cu, W, Co, Nb, Al, Ti, Zr, Sn, Mg, Pb, B, Pt, Ag, Pd, Ta
13.	Copper based alloys	<ul style="list-style-type: none"> • Cast as well as wrought Cu-alloys • Elements to be tested in Cu-alloys include Ni, Zn, Mn, Mg, Sn, Ag, Pb, P, Fe, S, Te, Si, Cr, As, Sb, Cd, Bi, Ag, Co, Al, Be, Zr, Au, C, Ti
14.	Cobalt based alloys	<ul style="list-style-type: none"> • Co-based alloys • Elements to be tested in Co-alloys include C, Cr, Ni, Fe, Si, Mn, Cr, W, P, S, Al, Cu, V
15.	Standards and Calibration	<ul style="list-style-type: none"> • The OES should be pre-calibrated for the above mentioned elements • Specify extent of calibration required and traceability and validity of calibration at the time of installation • Specify calibration requirements after the initial validity • Standard samples should be supplied with the spectrometer • Five standard samples should be provided for each base alloy for cross-checking the performance of the OES in service
16	Software	<ul style="list-style-type: none"> • The instrument should be installed with latest available version of software for control, operation and analysis. • The supplier should upgrade the software as and when the upgradations become available for at least five years from installation • Recalibration with single sample is desirable • Continuous automatic hardware diagnosis • Automatic switch over of spectral lines according to their concentration ranges
17.	Computer and Printer	<ul style="list-style-type: none"> • The OES should come with a high performance computer with all the OES software installed on it • Minimum Configuration: intel dual core processor, 2GB RAM, 500Gb Hard Disk, 24" Display with other essential peripherals • Laser printer should be provided with the computer
18.	Power Supply and UPS	<ul style="list-style-type: none"> • Specify the requirements of the power supply for the offered OES • UPS should be provided with the OES with the minimum back-up of 30 minutes to run the OES, computer and printer
19.	Documentation	<ul style="list-style-type: none"> • Two sets of operating manuals for the equipment and control system should be provided in hard copies • A soft copy of the above manuals should also be provided in a

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		CD/DVD
20.	Safety Norms	<ul style="list-style-type: none"> • The instrument should be compliant with international norms for safety and environment
21.	Installation, Commissioning and Training	<ul style="list-style-type: none"> • The delivery of the OES should be considered complete only after successful commissioning of the instrument • The pre-installation requirements should be communicated to IIT Kanpur well in advance of the installation • The Installation, commissioning and training should be done only by well trained factory engineers • The supplier should provide training to at least two candidates at the installation site to make them familiar with smooth operation of the instrument
22.	After-sales Service	<ul style="list-style-type: none"> • The supplier should provide a prompt after-sales service such as regular instrument maintenance, troubleshooting and fixing • The list of service centers in India should be included.
23.	Spares	<ul style="list-style-type: none"> • List of standard spares to be provided for each year starting from 1st to 5th year along with cost and discounted rates • An undertaking that the vendor will supply all the spares and services for the equipment for at least 5 years from the date of commissioning •
24.	Sample preparation accessories	<ul style="list-style-type: none"> • Include the list and costs of standard accessories required for preparation of sample for the OES analysis
25.	Annual Maintenance Cost	Include the cost of annual maintenance for each year for five years after the warranty period.
^{1.} Above specifications are desirable and the actual specifications for your systems should be clearly mentioned. ^{2.} Additional optional accessories should be indicated and quoted separately		