



Bureau international des poids et mesures

Call for tenders

***Mass spectrometer for the analysis of low pressure ozone gas
purity***

The deadline date for the receipt of Tenders is 16/02/2010



INSTRUCTIONS TO TENDERERS

Mass spectrometer for the analysis of low pressure ozone gas purity

SEVRES - FRANCE

B.I.P.M.

Pavillon de Breteuil

92312 Sèvres

France



Preamble

The BIPM (International Bureau of Weights and Measures) in Sèvres, France, is an intergovernmental scientific organization whose mandate is to provide the basis for a coherent system of measurements throughout the world, traceable to the International System of Units (SI). It has an international staff of over 70. Further information about the BIPM can be found on the website: www.bipm.org.

1. PURPOSE AND OBJECT OF THE CALL FOR TENDERS

The BIPM is issuing a call for tender for the supply of **Mass spectrometer for the analysis of low pressure ozone gas purity**.

2. TERMS AND CONDITIONS OF THE CALL FOR TENDERS

2.1 Composition of the Call for Tenders

The documentation relating to the Call for tenders includes the following parts:

- a. Instructions to Tenderers;
- b. Terms of reference;
- c. Purchasing Conditions.

2.2 Tenders

All tenders will be treated as contractually binding for the Tenderer and the Tenderer shall consequently date and sign the documents mentioned above, as well as any document in support (including its proposal of prices), and initial each page of each document.

2.3 Duration of tenders validity

Tenders shall remain valid for ninety (90) calendar days, as from the deadline for receipt of tenders.

2.4 Additional information

Should any problems of interpretation arise in the course of drawing up the Tender documents, Tenderers may submit a written request for further information to the address indicated below, not later than ten (10) calendar days before the deadline for the receipt for tenders. All Tenderers will be advised of the answers given to such questions:

Bureau International des Poids et Mesures
Département Finances et Administration
François Ausset / service Achats
francois.ausset@bipm.org
Appel d'offres n° AO/BIPM/2010/CHM/019 : Mass Spectrometer
Pavillon de Breteuil, 92312, Sèvres, Cedex, France.

2.5 Acceptance and rejection of Tenders

There is no commitment on the part of the BIPM to accept any Tender or part thereof that is received in response to the Call for Tenders. The BIPM reserves the right to accept Tenders with non-substantial defects and to reject Tenders received after the deadline for receipt of Tenders, without indemnity or justification.

2.6 Modification or cancellation of Call for Tenders

The BIPM reserves the right to modify or cancel all or part of the Call for Tenders, should the need arise, without having to justify its decision and without such decision conferring any right to compensation on Tenderers.



2.7 Extension of the deadline for receipt of Tenders

The BIPM reserves the right to extend the deadline for receipt of the Tenders. In that case, all the Tenderers and the BIPM's rights and duties and in particular Article 2.3 above will be subject to this new deadline.

2.8 Expenses

No reimbursement of expenses related to the preparation for any Tender will be made by the BIPM.

2.9 Confidentiality

The Call for Tenders and any further information communicated to the Tenderer or which come to his knowledge in the course of the Call for Tenders and the supply, are confidential and are strictly dedicated to the purpose of the Call for Tenders. The BIPM reserves the right to have all material returned at the end of the Call for tenders process.

3. PRESENTATION, SUBMISSION AND CONTENTS OF TENDERS

3.1 Presentation and Conditions for submission

Tenders shall:

- o be entirely drafted in English or French;
- o **clearly distinguish the technical part from the financial part.** The technical tender and the financial tender shall not be included in a single document, but in two separated documents;
- o **be submitted in one (1) paper copy and one electronic copy** both including the technical and financial parts (CD Rom, USB key...) to : "*BIPM, Département Finances et Administration, service Achats, à l'attention de M. François Ausset, Pavillon de Breteuil, 12, Grande Rue, 92312 Sèvres, France*", under sealed envelopes bearing the mention : "*Appel d'offres : A ne pas ouvrir par le service courrier*";
- o be submitted before the deadline date for receipt of tenders: **16/02/2010**. The Tender should be postmarked by the above-mentioned deadline date for receipt.

The technical part shall be presented on an anonymous electronic copy. Tenders which are received after the deadline for receipt specified above, as well as those submitted in unsealed envelopes, may be rejected, and in that case will be destroyed.

3.2 Contents of the Tender

In addition to its response to the Terms of Reference, the Tenderer must provide:

- all **certificates identifying the Tenderer** including its name, address, registration number or equivalent, date founded, legal form and any other information that it may deem relevant;
- **the names of at least three institutions and contact persons** willing to provide independent evaluations of similar mass spectrometers. Indeed, the system must be based on proven designs based on proven techniques as evidenced by references by previous purchasers of similar equipment;

a **warranty** for all components for a period of at least one year beginning with the satisfactory operation of all components at the BIPM;

- **Set-up and acceptance tests at the BIPM:** on reception, the BIPM staff will check that the spectrometer complies with the specifications using a procedure described in the terms of reference.



- **A detailed report** setting up the means and structures the Tenderer proposes to implement in order to fulfil its obligations.

Any Tender must include everything necessary for the complete execution of a contract (insurance, transport, guarantees). Charges for items not identified in the Tender will be borne by the selected Tenderer.

4. HEARINGS

The BIPM reserves the right to organise hearings and request the Tenderers to specify the content of their Tenders.

5. SELECTION CRITERIA

Main criteria for Tenderer selection are as follows:

- Meeting Technical Specifications ;
- Delivery timeline for the supply;
- Overall cost.

6. INFORMATION TO TENDERERS

All Tenderers will be informed whenever possible, of the decision taken on their Tenders.

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TERMS OF REFERENCE

Mass spectrometer for the analysis of low pressure ozone gas purity

SEVRES - FRANCE

B.I.P.M.

Pavillon de Breteuil
92312 Sèvres
FRANCE



1. OBJECTIVES OF THE PROJECT

Acquisition of a **Mass spectrometer for the analysis of low pressure ozone gas purity** in a new experimental setup for the redetermination of the absorption cross section of ozone at 244 nm, 248 nm and 257 nm. This requires the assembly of a vacuum chamber (pressure between 0.05 mbar and 10 mbar), in which a mass spectrometer is required to ascertain and monitor purity of ozone gas. In particular, the mass spectrometer will be used to ascertain the ratio between oxygen and ozone concentrations.

2. SPECIFICATIONS REQUIRED

2.1 Mass spectrometer

A. Equipment: The complete system (afterwards called "spectrometer") shall include :

- Sampling inlet.
- A quadrupole mass spectrometer.
- A vacuum system including a turbo pump.

B. Measurement range: the spectrometer shall be able to measure the concentration of atoms/molecules having a mass between 1 and 100 atomic mass units (AMU's). The spectrometer must specifically be able to detect ozone (O₃) at mass 48.

C. Precision, repeatability and measurement time: the spectrometer shall be able to measure the ratio between oxygen (AMU: 32) and ozone (AMU: 48) with a 1 % precision with a total measurement time of less than 1 second. The standard deviation of 10 measurements of oxygen (AMU:32) and ozone (AMU: 48) must be less than 1 % of the values measured.

D. Resolution: The spectrometer shall have a resolution of 1 AMU.

E. Limit of detection: The spectrometer shall be able to detect the presence of any atom or molecule with an AMU between 1 and 100 with a partial pressure as low as 10⁻⁸ mbar in a gas at 0.01 mbar and the presence of any atom or molecule with an AMU between 1 and 100 with a partial pressure as low as 10⁻⁶ mbar in a gas at 10 mbar.

F. Sampling pressure range: The spectrometer shall be able to operate with ozone and/or oxygen gases at a total pressure between 0.05 mbar and 10 mbar.

G. Spectrometer chamber material: the stainless steel in contact with the vacuum inside the spectrometer must be stainless steel 316 or 316L.

H. Environmental conditions: The required environmental conditions for the correct operation of the spectrometer shall be stated. The spectrometer shall be required to operate correctly with room temperature between 20°C and 25°C, and with relative humidity between 50% and 60%.

I. Software: The software and hardware shall be configurable such that any desired sequence of AMU's can be measured uniquely.

J. Safety: Tenderers will ensure that appropriate safety features have been implemented in the spectrometer design for the protection of personnel operating the instrument.

3. GENERAL CONDITIONS

A. Delivery time: less than 6 months starting from the notification of the order to the Tenderer selected by the BIPM. The order shall be null and void if material meeting the final specifications is not delivered within 9 months.

B. Acceptance tests period: 2 months following receipt and installation of the equipment meeting the final specifications by the BIPM;

C. All mains-operated equipment must be able to function on 230 V, 50 Hz power.



D. Maximum use of metric sizes is requested.

E. Documentation:

- Provision of complete operator's manual in English for all components of the system.
- In the case where components of the system are subcontracted, vendors must clearly identify manufacturers.

F. The Tenderer shall provide, as mentioned above in the Instructions to Tenderers:

- The names of at least three institutions and contact persons willing to provide independent evaluations of a similar spectrometer.
- A warranty for all components for a period of at least one year beginning with the satisfactory operation of all components at the BIPM.

G. Set-up and acceptance tests at the BIPM: on reception, the BIPM staff will check that the mass spectrometer complies with the specifications using the following acceptance tests:

Response function of the spectrometer versus the oxygen mole fraction:

The spectrometer will be mounted on a stainless steel vacuum chamber, together with a pressure gauge and a pumping system. The chamber will be filled successively with certified mixtures of oxygen (AMU:32) in nitrogen (AMU:28) at three nominal mole fractions in the range 1000 ppm to 10%, at a constant total pressure of 1 mbar. At each nominal mole fraction the spectrometer response (oxygen/nitrogen ratio) will be recorded together with the experimental standard deviation, and a calibration curve will be evaluated by the means of a least-square fit.

- The short term repeatability will be tested: the experimental relative standard deviation of ten ratios measured at each mole fraction shall be less than 1%.
- The sensitivity will be tested: the change in the spectrometer response due to a 1% relative change in the nominal oxygen/nitrogen mole fraction shall be greater than the noise in the spectrometer response. The noise in the spectrometer response shall be defined as two times the standard deviation of ten measurements of the spectrometer response at the nominal mole fraction..

Response function of the spectrometer versus the pressure:

The aforementioned chamber will be filled with a mixture of 1 % of oxygen in nitrogen at ten successive pressure values in the range 0.05 mbar to 10 mbar. At each nominal pressure value the spectrometer response (oxygen/nitrogen ratio) will be recorded together with the experimental standard deviation, and a response curve will be evaluated by the means of a least-square fit.

- The stability of the response will be tested: the response shall be constant, such that the deviation of the response at any pressure from the average response calculated from all pressures shall be less than twice the experimentally determined standard deviation at each pressure.

Limit of detection test:

The aforementioned chamber will be filled with a mixture of 1 ppm of ozone in oxygen (or air) at a pressure of 10 mbar, 1 mbar and 0.05 mbar successively. It will be verified that the spectrometer can detect the ozone with a signal-to-noise ratio of at least 5.

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PURCHASING CONDITIONS

Mass spectrometer for the analysis of low pressure ozone gas purity

SEVRES - FRANCE

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1. Acknowledgement of orders

The acknowledgment of the Bureau international des poids et mesures (hereinafter also the BIPM) orders implies the Contractor's acceptance of the present Purchasing Conditions (PC).

The PC are constituted by the general conditions herein and any specific conditions mentioned by the BIPM in its order.

The BIPM will only be bound by the order if it is written and issued by the BIPM's procurement services. The order, the specific conditions and the PC are deemed accepted as soon as the Contractor accepts the order.

2. Information and data handed over

The Contractor shall only use the information and data, oral or written (including software) obtained from the BIPM and/or its staff in the framework of the order's performance. All data and information are the BIPM's property; upon BIPM's request, such data and information, and all copies, shall be immediately handed over insofar as such data and information are under written form, floppy disk or magnetic tape.

The Contractor shall not disclose any such data and information to any third body without the prior written agreement of the BIPM. The Contractor shall not declare the BIPM as its client and shall not use the BIPM's name and logos.

The BIPM remains the sole owner of the studies, surveys, samples and documents, whatever their nature is, handed over or sent by the Contractor to the BIPM in the framework of the order's planning and performance. The Contractor waives in advance any claim for payment with regard to these studies, surveys, samples and documents.

3. Equipments and devices made available to the Contractor

The BIPM remains the sole owner of the equipments and devices (e.g. prototypes, tools, templates, molds, gauges, plans, software, drawings, models and patterns, technical specifications, reports and all other kind of documents, stands and mountings) made available by the BIPM to the Contractor, as a loan, in order to allow it to perform its obligations.

Equipments and devices made available to the Contractor by the BIPM are under the Contractor's custody. It shall contract all insurances necessary for insuring all the risks associated with this custody. Insurance Certificates covering those risks shall be sent for information to the BIPM.

Whenever the properties of the Contractor are under a seizure procedure, it shall inform accordingly the BIPM and let the Bailiff know that the equipments and devices made available by the BIPM to the Contractor belong to the BIPM and are immune of any legal and administrative constraints.

4. Assignment

The Contractor shall not assign or sub-let the order's performance, in all or part, without the BIPM's prior written agreement. If a sub-contracting contract is in force, the Contractor is still responsible for the complete performance of the order.

5. Price - Invoices - Payment

Prices stated in the order are always to be considered as D.D.U. Incoterm, BIPM's headquarters. All freight and shipping expenses of goods, equipments and devices delivered to the BIPM are paid by the Contractor. The BIPM is in charge of all the import and customs procedures.

Upon delivery and acceptance of the goods and/or services and full performance of the order, the BIPM shall pay to the Contractor the unit prices stated in the order, within the stated milestones. Pursuant to the immunities enjoyed by the BIPM, unit prices shall be franco, without customs taxes and any taxes.

Prices are firm and fixed.

The order's currency shall be Euro.

Payments shall be made by wire transfer or by banque cheque.

The Contractor is not entitled to any other sums than the ones it is entitled to pursuant to the order.

No partial invoicing is allowed, unless prior agreement of the accounting services.

Invoices shall be in triplicate and shall be sent or hand-delivered to the BIPM, under separate and sealed envelopes bearing the mention "invoices". They shall be sent to the BIPM's accounting services. Invoices must always show the order's number and the delivery document(s)' number(s).

Unless agreed otherwise, payment shall be effected within 30 days of invoice's receipt at the BIPM, end of the month the 10th. Unless otherwise agreed, no advance payment shall be made further to the order's acceptance.

Payment of 70 % of the sum specified in the purchasing order shall be settled within 30 days of invoice's receipt at the BIPM, end of the month the 10th

Payment of the remaining 30% of the sum shall be settled following validation of the acceptance tests.



6. Shipment and packaging

Any delivery with a lorry shall be subject to the following conditions: maximum height: 3,60 meters and maximum authorised load: 10 tons.

Whatever is the shipment mode and irrespective of any contrary clause, the Contractor is responsible for the condition of the ordered goods, equipments and devices, as well as for any consecutive damages.

Moreover, the Contractor shall make the necessary provision for sufficient packaging of the goods, equipments and devices, with a view to protecting them against the normal transportation's risks.

All parcels shall show in a conspicuous location: the order's number and the name of the BIPM's Section, as identified in the delivery address. The Contractor shall only hold the property of the packaging used for the shipment of goods, equipment or device delivered to the BIPM, if they show in a conspicuous location the Contractor's name and the deposit's value. The BIPM shall hold the property of any packaging it owns.

7. Delivery documents

Any delivery shall be accompanied by a numbered delivery document, in duplicate, which model can be imposed on the Contractor by the BIPM and showing the:

- shipment's date;
- recipient BIPM's Section, as identified in the delivery address ;
- order's reference ;
- Contractor's identification ;
- identification of the goods, equipment and device delivered and, when applicable, identification by parcels;
- if need be, number of the box used for packing.

The delivery is acknowledged by the delivery of a receipt to the Contractor or by the signature of a copy of the delivery documents.

Any delivery without delivery documents showing all the requested information may be rejected and returned to the contractor at its own costs.

8. Delivery deadlines, penalties and alternative supplier

Delivery time: 6 months starting from the notification of the order to the selected Tenderer by the BIPM. The order shall be null and void if material meeting the final specifications is not delivered within 9 months.

Unless otherwise agreed, deadlines are meant goods, device or equipment delivered at the location specified in the order. If the order is not performed within the agreed upon deadlines, the BIPM reserves the right to terminate the order without any indemnity and further to a single notice by registered letter with recorded delivery, without prejudice to any action that could be exerted by the BIPM further to any total or partial failure of the Contractor to perform is contractual obligations.

Whenever the delivery deadlines are not abided by, the order may be declared null and void by the BIPM as above-mentioned and penalties shall be imposed on the Contractor calculated as follows:

$P = V * R / 1000$, in which:

- P = the penalties' amount;
- V = the value of the performance items on which the penalties are calculated; this value equals to the value of the payment of part of the late performance items, or of the whole performance items, if the whole goods, equipment, or device cannot serve their agreed upon purpose due to the late delivery;
- R = number of days of delay.

Whenever the order is terminated, the penalties may be imposed until the eve (included) of the date of the termination's entry into force.

In addition to the penalties and without prejudice of the right of the BIPM to terminate the order, whenever the Contractor, further to a formal notice, did not do its utmost to perform the order within the agreed upon deadline, the BIPM shall be entitled to recover from the Contractor the additional costs incurred in procuring replacement goods, device or equipment from an alternative supplier.

9. Acceptance and Warranties

Delivered goods, equipment, device and/or services shall strictly conform, with regard to quantity and quality, to the terms of the order and its annexed documents. The acceptance of Goods, equipment, device and/or services delivered shall only be final and without reservation, further to an inspection by the BIPM of their technical specifications. When the acceptance is conditional until the Contractor rectify defects or supply replacement items, it will only be final when all and every defects are rectified. The information shown on the delivery documents are purely indicative in that respect.



The Contractor warrants that the delivered goods, equipment, device and/or services conform to the order and in particular to their proper use, as identified in the order or arising from their nature. It also warrants that they shall be of satisfactory quality, sound in design and in conformance in all respects with the state of art and norms and shall be free of defects in material, creation, conception or performance.

The Contractor is responsible for any damages linked to the performance of the order and shall indemnify for any damage or loss in connection with its defaulting performance. The Contractor shall contract an insurance policy covering all these risks. The Contractor shall hold the BIPM harmless against any counter-claim that could be made against the BIPM by third parties as a result of the performance of its obligations, with regard to its employees and properties, and generally speaking against any direct or indirect claim.

10. Work and services at the BIPM

When the order implies assembly, mounting, building and commissioning, the Contractor shall perform its full obligations under the order at its own risks. The Contractor shall strictly conform to and abide by the BIPM's Health and Safety Manual (or its equivalent).

11. Subcontract

The Subcontractor is the entity to which the Contractor entrusts the execution of part of the activities and deliverables.

As a principle, the Contractor executes itself the whole of the activities and deliverables mentioned in the Agreement. The Contractor may however subcontract part of the activities and deliverables.

In the case of subcontracting, the Contractor remains fully responsible for the activities and deliverables undertaken. The Contractor may not oppose to the BIPM the delay of a Subcontractor. The Contractor commits to have the Subcontractors respect the rulebook generally recognised at the time of the execution of the activities and deliverables.

The BIPM may request the Contractor to replace a Subcontractor following written notice to the Contractor, such notice having remained ineffective for 10 (ten) days, should the Subcontractor not have respected the rulebook or the Agreement requirements on quality and/or time limits.

Should the BIPM exercise this request for replacement, the Contractor shall withdraw the Subcontractor and bear the ensuing charges and costs and the Contractor shall, without delay and at its expense, all necessary steps to ensure the smooth progress of the whole of the activities and deliverables.

12. Intellectual property rights

The BIPM retains the right to:

- Reproduce any results arising from the performance of the order (hereinafter the results) and any associated documents;
- Manufacture or order the manufacturing of any items, device or constructions which conform to the results arising from the performance of the order or any part thereof;
- Communicate to third parties the results, including the surveys' files, trials' reports, documents and information of any kind related to the performance of the order;
- Freely publish the results; this publication shall mention the name of the Contractor.

The Contractor shall not, without the prior and written agreement of the BIPM:

- use the results for trade purposes;
- communicate the results to third parties, with or without charge ;
- publish the results. The publication shall not mention that the survey has been financed by the BIPM.

The Contractor shall communicate to the BIPM, upon request, all its knowledge resulting from the performance of the order, whenever licensed or not.

The BIPM shall consider the methods and know-how of the Contractor as confidential, unless these methods and know-how are part of the scope of the order.

Titles protecting existing inventions, inventions made or used under the performance of the order, cannot be opposed to the BIPM in order to prohibit their use.

The Contractor shall hold the BIPM harmless against any claim that could be made against the BIPM by third parties with regard to their intellectual, artistic or industrial property rights, pursuant to the performance of the order or the use of their results, in particular with regard to the right of reproduction.

The BIPM shall hold the Contractor harmless against any claim that could be made against the Contractor by third parties with regard to the use imposed, under the order's terms, on the Contractor of their intellectual, artistic or industrial property rights, proceeds and methods.



Further to any expression of claim by a third party against the Contractor or the BIPM, they shall do their utmost to put an end to any rights' infringement and give each other a mutual hand, in particular through communication of all evidences or useful documents they may hold or obtain.

13. Termination

The BIPM reserves the right to terminate the order without any notice or indemnity, without prejudice of any claim or action it may initiate in case of total or partial failure of the Contractor to perform its contractual obligations and/or if the Contractor underwent frauds or provide corrupt gifts in the framework of the call for tenders or the performance of the order.

Whenever the BIPM terminates the order, in part or in all, without any default on the part of the Contractor, it does not have to motivate its decision. In addition to the payment of performed items or fractions of performed items and to the reimbursement of any advance expenses (upon receipt of corresponding vouchers), the Contractor shall receive a fixed and final compensation amounting to a maximum of 3% (three per cent) of the orders' balance; this amount excludes any additional compensation and includes in particular any Contractor's shortfall in earnings.

Whoever is responsible for the termination and whatever is its rationale, such termination shall be notified by registered letter with recorded delivery and be automatic, *ipso jure* and without any further formalities.

14. Applicable law and disputes' settlement

- 14.1 Given that the BIPM is an international organisation, the dispute, controversy or claim shall be first decided in accordance with the provisions of the order and, should it be necessary, with French law. The order's provisions shall be given precedence over all Statutes, Rules and Regulations and any domestic law referred to in such provisions.
- 14.2 Any dispute arising out of the interpretation or performance of the order that could not have been settled through a mutual agreeable agreement within 15 (fifteen) days after due notice given by a party to the other, shall be referred to, and finally determined by, arbitration, pursuant to articles 13.3 to 13.6 below.
- 14.3 The arbitrator is chosen by the Parties by mutual agreement within 15 (fifteen) days after expiry of the mutual agreement deadline referred to in article 13.2.
- 14.4 If the Parties are unable to agree on an arbitrator within the deadline set out in article 13.3, the arbitrator will be randomly drawn within 8 (eight) days from the expiry of such deadline. Each party shall propose an arbitrator's name. Should one Party fail to designate an arbitrator or to show up when the draw takes place, the most active party shall do it on the last day of the 8 (eight) days deadline referred to above and shall seize the arbitrator immediately.
- 14.5 The arbitrator shall deliver its decision within 30 (thirty) days after receipt of the registered letter sent by the most active party and seizing him/her. He/she shall decide the case by applying the order's provisions and, in the alternative, the law applicable to the order. The place of arbitration shall be Paris (France). The languages to be used in the arbitral proceedings shall be English. The costs of the arbitration shall be determined by the arbitrator but shall not exceed the total price of the order. These costs shall be paid by the defaulting party.
- 14.6 The decision of the arbitrator shall be binding upon the Parties.

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