OGGETTO - Fornitura di un fully automated, multi-sample water vapor sorption analyzer con controller, image acquisition system e Raman spectrometer during running sorption analysis con relativo software, installazione e training

Supply of a fully automated, multi-sample water vapor sorption analyzer with controller image acquisition system and Raman spectrometer during running sorption analysis with the corresponding software, installation and training

L'amministrazione Centrale del Politecnico di Torino - Area AGACON Approvvigionamento Gare e Contratti Pubblici rende noto che intende procedere alla richiesta di offerta per l'affidamento della fornitura in oggetto.

This notice aims to contact the largest possible number of economic operators capable of providing the service subject to procurement and who may potentially be interested in participating in the future contractor selection procedure.

Le informazioni qui contenute hanno valore puramente indicativo e non costituiscono un vincolo per l'Amministrazione, che non assume alcun obbligo nei confronti degli operatori economici, i quali non hanno nulla da pretendere dal Politecnico di Torino, a qualsiasi titolo, in ragione della presente indagine.

The information provided here is purely indicative and does not constitute a commitment for the Administration, which assumes no obligation towards economic operators, who have no claims to make against the Polytechnic University of Turin, for any reason, based on this inquiry.

1. Specifiche tecniche minime dei prodotti richiesti/ Minimum technical specifications of the required products

Le seguenti caratteristiche tecniche, che verranno richieste nella futura procedura di gara, costituiscono requisiti minimi, necessari e richiesti a pena di esclusione / The following technical specifications, which will be required in the future bidding procedure, constitute minimum requirements, necessary and mandatory under penalty of exclusion.
Description:
The instrument shall be used to automatically measure concurrently multiple (between 11 and 23) water vapor sorption and desorption isotherms as well as sorption kinetics over a broad range of temperature and humidity within sorbent material samples. Furthermore, the analyzer should be a stand-alone instrument with embedded controller and operating system. It should be also able to be connected to a computer network directly or via a host computer. At the same time, the analyzer should be connectable with both a video camera system for image acquisition during the running sorption analysis and a Raman spectrometer for recording Raman spectra during running sorption measurements.

Requirements:
The fully automated water sorption analyzer should be characterized by:

- **Number of samples**: at least 11 samples in dishes with a diam. of at least 45 mm;
- **Min sample weight**: <50 mg;
- **Max sample weight**: 220 g per sample (total max 500 g);
- **Balance resolution**: dual weight range: 10 μg resolution up to 111 g with ±20 μg repeatability RMS, 100 μg resolution from 111 g to 220 g, with ±100 μg repeatability RMS;
- **Temperature range**: +5 °C to +60 °C;
- **Temperature accuracy**: over time ±0.1 K;
- **Humidity range**: 0% RH to 98% RH;
- **Humidity accuracy**: ±0.5% RH (0 … 98% RH), at 10 … 30 °C;
- **Long term stability**: better than 1% RH per year;
- **Water supply**: removable tank of at least 600 ml;
- **Gas carrier**: Compressed air / N2 2.5 bar to 10 bar, dry, clean, oil-free (class 1, ISO 8573-1:2010);
- **Dimensions & weight** (not including possible keyboard, mouse and monitor): max width 500 mm; max depth 700 mm; max weight 80 kg;
- **Power supply**: 100-240 VAC, 50-60 Hz.

The sorption analyzer should also include:

- **Additional sample tray**: sample tray with 23 sample positions and diam. < 35 mm;
- **Disher**: 100 pieces with suitable diameters;
- **Extension software to manage the additional sample tray** (if needed).

The video camera system should be compatible with the analyzer and have the following characteristics:

- **Sensor type**: CMOS
**Sensor size:** 11.3 mm x 11.3 mm  
**Resolution:** 2046 x 2046 pixel;  
**Pixel size:** 5.5 μm x 5.5 μm;  
**Camera lens:** 35 mm and 50 mm;  
**Glass cover:** with entry for the camera mount;  
**Camera mount:** with anti-condense heating;  
**LED ring light:** fully automated, integrated into the camera mount;  
**Heated blind plug:** with anti-condense heating to lock the camera mount if the camera is removed;  
**Interface:** Gigabit Ethernet;  
**Data format:** PNG images;  
**Software:** Fully compatible with the operation of the above water sorption analyzer including: 1) synchronization of the camera with the sample changer; 2) image acquisition according to selectable criteria (timer, counter, equilibrium); 3) allocation of image data to sorption data; 4) Excel report with hyperlinks to the corresponding image files.

The Raman spectrometer should be compatible with the analyzer and have the following characteristics:

- **Spectral range:** 270 ... 2000 cm⁻¹;  
- **Resolution:** 7 cm⁻¹;  
- **Detector TEC set point:** 10 ± 0.2 °C;  
- **Integration time:** 3 ms ... 60 s;  
- **Laser:** 785 nm, multimode;  
- **Laser power:** up to 450 mW, adjustable by the software;  
- **Working distance:** 50 mm (variable)  
- **Max dimensions & weight:** 20 cm max width, 20 cm max depth; 10 cm max height, 3 kg max weight;  
- **Environmental conditions:** 0°C to 40°C, non condensing;  
- **Glass cover:** with Sensor Mount for Raman probe;  
- **Heated blind plug:** for closing if the Raman probe is removed;  
- **Sensor plug:** with integrated heating to avoid condensation;  
- **Safety switch:** to deactivate the laser when opening the analyzer cover (if needed);  
- **Software:** For synchronization of the analyzer with the Raman spectrometer; triggered recording and display of Raman spectra.

Finally, we require full installation of the system at Politecnico di Torino including a dedicated detailed user training session. At least 12 month warranty period is required.

### 2. Importo massimo dell’affidamento / Maximum amount of entrustment
L’importo massimo stimato per l’affidamento è di € 185.000
The maximum estimated amount the award is € 185.000

Non sono previsti oneri per la sicurezza non soggetti a ribasso.

3. Requisisti di partecipazione

L’operatore economico interessato dovrà essere in possesso dei seguenti requisiti:

➢ **Requisiti di ordine generale** di cui agli arr.94, 95, 96, 97, 98 del D.Lgs. 36/2023;
➢ **Idoneità professionale**: iscrizione alla Camera di Commercio per attività coerente con quella oggetto di affidamento;
➢ Requisiti specifici previsti dall’art.47 del D.L. 77/2021 per affidamenti PNRR

**Minimum requirements of economic:**
The interested supplier must possess:

➢ **General requirements** as per Articles 94, 95, 96, 97, 98 of Legislative Decree No. 36/2023;
➢ **Professional suitability**: registration with the Chamber of Commerce for activities consistent with the one subject to procurement;
➢ **Specific requirements** provided in Article 47 of Legislative Decree No. 77/2021 for PNRR assignments.

4. Termini

Entro il giorno **02.04.2024**, gli operatori economici in possesso dei requisiti, interessati alla partecipazione alla futura procedura di selezione del contraente effettuata dalla Stazione Appaltante potranno manifestare il proprio interesse con le seguenti modalità:

- Messaggio di Posta Elettronica Certificata inviato all’indirizzo procurement@pec.polito.it
- Oggetto del messaggio: quello indicato nel presente avviso
- Testo del messaggio:

  Il sottoscritto_______, Codice Fiscale_______ in qualità di________ (ndr: indicare carica sociale) dell’operatore economico ____- Partita IVA______, manifesta il proprio interesse alla partecipazione alla procedura di selezione del contraente che sarà effettuata dal Politecnico di Torino per l’affidamento della fornitura indicata in oggetto.

  A tal fine dichiara altresì:
  ▪ di essere in possesso dei requisiti di ordine generale di idoneità professionale, indicati dalla Stazione Appaltante nell’avviso di pari oggetto;
• di non aver nulla da pretendere dal Politecnico di Torino, a qualsiasi titolo, in ragione della presente manifestazione di interesse;

Due date

Within the day 02 April 2024 the suppliers with the above mentioned requirements interested to partecipate to the further negotiation for the equipment below would reply to this market survey sending a communication by email:

• Email Address: buyer.SF@polito.it
• OBJECT: the same subject of this advice
• Text of the communication:

I undersigned ___________________, Fiscal code _____________________, on behalf of the company ___________________________ - VAT ID, expresses their interest in participating in the contractor selection procedure that will be conducted by the Politecnico di Torino for the procurement referred to in the subject.

I declare:
• To have the general professional suitability requirements, as indicated by the Contracting Authority in the notice of the same subject
• Not to pretend any fees from Politecnico di Torino replying to this market survey;

5. Richiesta chiarimenti

Per eventuali chiarimenti o informazioni tecniche, gli operatori economici potranno inviare richieste esclusivamente per posta elettronica all’indirizzo buyer.SF@polito.it

Further information:
Clarifications and further technical information could be required only by email at the addresses buyer.SF@polito.it

Torino, 18.03.2024