



**THIS IS NOT
AN ORDER**

REQUEST FOR BIDS/PROPOSALS COVERSHEET
THE UNIVERSITY OF SOUTHERN MISSISSIPPI
Procurement and Contract Services
118 College Drive #5003, Hattiesburg, Mississippi 39406-0001

Date: May 29, 2023

BID No. 23-34

THE UNIVERSITY OF SOUTHERN MISSISSIPPI is considering the purchase of the following item(s). We ask that you submit your bid and retain one copy for your files. Right is reserved to accept or reject any part of your bid. Your quotation will be given consideration if received in Bond Hall, Room 214 on or before:

2:00 p.m. CT

June 26, 2023

Buyer: Amber Floyd

Name: _____

Company: _____

Address: _____

City/State/Zip: _____

TERMS - Bidder should state terms of sale. Our terms are 2% ten days, net 45 days.

These terms will apply per Mississippi law.

AWARDING CONTRACT - Cash terms will not be used as a basis for awarding contracts; however, the University will accept cash discounts when earned.

NOTE: If you cannot quote on the exact material shown, please indicate any exception giving brand name and complete specifications of any alternate. If additional space is required, use a separate sheet or letter of transmittal.

| ITEM | QUANTITY | DESCRIPTION | UNIT PRICE | TOTAL NET PRICE |
|------|----------|--|------------|-----------------|
| | | BID 23-34 Powder X-ray Diffractometer System RFx # 3160005911 | | |
| | | PROPOSAL MUST BE RETURNED TO THE UNIVERSITY IN ACCORDANCE WITH THE SPECIFICATIONS. RFP NUMBER AND DATE OF BID OPENING MUST BE SHOWN ON THE OUTSIDE OF THE ENVELOPE IF USING THAT METHOD. | | |

We quote you as above - F.O.B. The University of Southern Mississippi.

Shipment can be made in _____ days from receipt of order. DATE _____

Return quotation to Procurement Services at above address.

Bid # 23-34
University of Southern Mississippi
Powder X-ray Diffractometer system

1.0 Introduction

1.1 The University of Southern Mississippi (USM) is looking to procure an X-ray diffractometer (XRD).

2.0 Specifications

2.1 GENERAL PERFORMANCE SPECIFICATIONS

2.1.1 An XRD capable of measuring bulk and powder samples, obtaining diffraction spectra, and database search capabilities for composition determination

2.2 REQUIREMENTS

2.2.1 The following specifications are to ensure that the XRD system will perform the tasks necessary to satisfy the project's objectives. Any deviation from the following specifications must be explained and justified.

2.2.2 Bidder shall meet or exceed the following capabilities and design specifications:

- General Equipment Description:
 - X-ray powder diffractometer:
 - An XRD system capable of measurements on bulk and powder samples from only a few milligrams of powder to large bulk solid materials for phase analysis, crystalline structure, and material properties of known and unknown samples.
 - Ability to measure large sample sizes approximately 10 cm by 5 cm by 2 cm.
 - External chiller, no need for liquid nitrogen, coolants or additives.
 - Must include a heated stage.
 - Must be a vertical goniometer.
 - The instrument must include a continuously variable divergence slit that keeps the irradiated area of the sample constant throughout the entire 2θ measurement range.
 - The XRD must include an automatic sample changer. The autochanger must have a minimum of six sample positions and allow for sample spinning to minimize the effects of preferred orientation.
 - The power of the X-ray tube must be 600W or higher.
 - Although most of the measurements will be carried out in reflection mode, the instrument should be able to switch to transmission measurements for thin polymer films.
 - The system should be able to accommodate Cu, Co, Fe, or Cr radiation.
 - The detector must be a 0D and 1D detector for fast measurements and versatility.
 - Usable angular range should be equal to or better than -3 to 145° (2-theta).
 - A minimum resolution of 0.025° (2-theta)
 - A PC to control the spectrometer needs to be an industry standard computer running Windows™ operating system. The controller must include a

minimum of a 23-inch monitor, 16GB RAM, 500 GB hard drive, and a DVD+RW drive.

- XRD analysis software capable of search/match phase identification with at least 10 licenses.
- Must include a diffracted beam graphite monochromator for maximum intensity.
- The XRD must include a heated stage which can replace the standard stage and autosampler. This heated stage must have a temperature range of ambient to 500°C and not require any external cooling, only air.
- Installation and familiarization must be included.
- 3-year warranty minimum.
- The instrument must have the capability of using a 2D detector available as an option.
- Automatic or no sample alignment required.
- Geometry selection by computer.
- Full instrument self-alignment.
- Lead time less than 12 weeks
- LaB6 Standard included for routine verifications

- **Hardware and Software Requirements:**

- Intuitive and user-friendly control software capable of exporting XRD spectra in a text format
- Analysis software should be capable of using CIF files for phase identification search (polymer, mineral, forensics, etc. databases) or optional ICDD databases.
- Data processing, data evaluation and data visualization/reporting should be managed by a single software with a minimum of 10 licenses.
- Must include the capability of powder Rietveld analysis.
- Must include and integrate with the Crystallography Open Database (COD).

- **System Validation:**

- At the installation time, the system should be verified for an angular resolution of K_α1 peak for Cu on LaB₆'s first peak better than 0.025° (2-theta) FWHM.
- The angular resolution of 0.01° (2-theta) on all peaks of LaB₆ should be verified at installation.
- Installation and training upon setup must be provided as well as a test run with a University sample.

- **The following items shall also be provided with the equipment**

- Initial installation/familiarization and at least 2 days of formal training (onsite or online).
- Systems operations guide, maintenance manual, and spare parts list
- Online and on-call technician support for software and hardware for the lifetime of the system (free or at cost)

2.3 CUSTOMER SUPPORT

2.3.1 The vendor should be willing to help The Mississippi Polymer Institute at The

University of Southern Mississippi resolve any technical issues associated with the system, not only in the warranty period but also out of the warranty with reasonable service fee and leading time. Online and on-call technical support for software and hardware for the lifetime of the system shall also be provided. A minimum of three full days of onsite or on-line training must be included. Training to include, system setup, operation, maintenance, and troubleshooting.

2.4 SAFETY

- 2.4.1 Safety should be well weighted in the machine design, engineering delivery and user interface communication. The XRD system shall be equipped with limit switches and mechanical stops for equipment protection and sustainability. Electronic controls shall be enclosed and not exposed to water or the external environment, especially NOT under the goniometer.

2.5 WARRANTY

- 2.5.1 Bidder warrants that the machinery shall be free from defects in material and workmanship under normal use and service with the obligation to repair or replace any parts, which are proven defective, with a minimum of one year from delivery with a warranty start date which commences post system installation and verification. Bidder shall also provide free software upgrades.

2.6 DELIVERY

- 2.6.1 Vendor should quote the lead time required for delivery of the quoted equipment. Lead time shall not be greater than 18 weeks. Quoted prices should be F.O.B. Destination Freight Allowed. Onsite installation and system check is required.

3.0 Points of Contact

For questions, contact the Buyer listed on the Bid Coversheet at:

bids@usm.edu

4.0 Submission Instructions to Bidders

One (1) signed original, two (2) copies, and one (1) portable virus/malware free electronic version (USB jump drive) of the sealed bid response (if an electronic copy is not included, USM reserves the right to request an electronic copy of the exact bid response prior to review of the bid), subject to the conditions made a part hereof, will be received by_____, in the USM Procurement and Contract Services office, as indicated in the General Terms, Conditions, and Instructions to Bidders described herein. It is the responsibility of the respondent to ensure that the proposal package arrives in the Procurement and Contract Services Office.

Each bid **must** be submitted in a sealed envelope bearing on the outside the name “Bid # 23-34 X-Ray Diffractometer (XRD)” the name of the Vendor, and the opening date specified on the coversheet.

The proposal should be addressed as follows:

For regular mail:

The University of Southern Mississippi
Attn: Amber Floyd, Buyer
118 College Drive, Box 5003
Hattiesburg, MS 39406
Bid 23-34

For FedEx, UPS, or other express couriers:

The University of Southern Mississippi
Attn: Amber Floyd, Buyer
2609 W. 4th Street
Hattiesburg, MS 39401
Bid 23-34

Hand-carried responses should be brought to:

The University of Southern Mississippi
Attn: Amber Floyd, Buyer
214 Bond Hall
Hattiesburg, MS 39406
Bid 23-34

As an alternative to traditional sealed proposals in envelopes, the University of Southern Mississippi is capable of receiving electronic bid responses. While this option is available, it is not required and we ask that all potential respondents keep in mind that with any electronic system there could be delays or glitches with the submission process; therefore the University *highly encourages traditional sealed responses* which are either mailed or submitted in person. Additionally, the University will not be responsible for issues with attempted submissions of bids using the electronic method.

Please note that emailed bids will not be accepted.

Should a vendor choose to submit their response electronically, please follow the instructions below using the following website:

https://www.ms.gov/dfa/contract_bid_search/Home/Sell

On this site you will find helpful links to procurement opportunities, as well as a link to supplier registration. If not already registered in this system, potential bidders will first need to click on 'Supplier Registration' and follow the steps outlined (a one-time process). Once registered, suppliers can return to the original website and click on 'Procurement Opportunities' where they can either search by keyword for the bid they desire to respond to or leave the search box blank and click 'Search' for a listing of all current bids and proposals for the various State of Mississippi offices.

Any bid may be withdrawn prior to scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered.

The University of Southern Mississippi reserves the right to accept or reject any or all bids and to waive any formalities.

The University of Southern Mississippi reserves the right to accept or reject optional line items included in the bid response.

Vendors are responsible for examining all specifications, terms, conditions, and instructions of this request. Failure to do so will be at Vendor's risk.

In order to ensure all interested bidders receive any addenda that may be issued, proposers must email their intent to bid using the Intent to Bid link on the USM Bid Calendar under Bid 23-34 prior to the deadline to submit:

<https://www.usm.edu/procurement-contract-services/current-bids-and-sole-source-notices.php>