Mississippi State University
Notice of Proposed Sole Source Purchase

Mississippi State University anticipates purchasing the item(s) listed below as a sole source purchase. Anyone objecting to this purchase shall follow the procedures outlined below.

1. Commodity or commodities to be purchased (make, model, description):
   Anton Paar Autosorb 6300 with a factory-integrated Pfeiffer Prisma Pro QMG 250 mass spectrometer (MS) for high-vacuum physisorption (BET surface area, BJH pore size distribution, and condensable vapors) and chemisorption (static volumetric chemisorption, dynamic flow chemisorption, and pulse titration) analysis, temperature-programmed techniques, and gas monitoring under reaction conditions. This instrument also includes a mass flow controller and 16 gas input ports (11 analysis (FKM), 1 analysis (PFE), 1 vapor, 1 helium, 1 degas/backfill, 1 pulse titration), and 6 integrated degassing stations in 2 independent heating zones with a dedicated cold trap.

2. Explanation of the need to be fulfilled by this item(s), how is it unique from all other options, and why it is the only one that can meet the specific needs of the department:
   The Autosorb 6300 with a mass spectrometer is the only commercially available instrument capable of performing cycled physisorption-chemisorption on the same sample in the same cell without air exposure or sample disconnection. This unique capability is enabled by Anton Paar's proprietary active coolant level control, which uses a coolant level sensor to maintain the cold zone during physisorption analysis. A conventional isothermal jacket would be damaged during chemisorption experiments. No other commercially available gas analyzer provides high-vacuum physisorption, static and dynamic chemisorption, temperature-programmed analysis, and mass spectrometric detection within a single platform, which is required for planned research into the comprehensive characterization of heterogeneous catalysts.

   These unique capabilities are required for sequential measurements on the same sample to link catalytic behavior to changes in catalyst properties related to deactivation, regeneration, stability, and structure-activity relationships. Minimizing sample transfers and air exposure between these steps is important for distinguishing reaction-induced changes from artifacts associated with sample handling.

Additional distinguishing features include fully automated evacuation valving that prevents sample elutriation and instrument contamination without requiring specification of sample type; the 90+ hour nitrogen dewar allows uninterrupted analysis of challenging microporous samples. This is the longest on the market.et.

3. Name of company/individual selling the item and why that source is the only possible source that can provide the required item(s):
   Anton Paar is the sole manufacturer and supplier of the Autosorb 6300 in the United States. Anton Paar is the only supplier offering high-vacuum sample preparation with an integrated turbomolecular pump and cold trap built into the instrument. This configuration delivers the highest vacuum performance for challenging samples.

4. Estimated cost of item(s) and an explanation why the amount to be expended is considered reasonable:
   The cost for the Autosorb 6300 system is $121,515. At no additional cost, the quoted price includes a mass spectrometer, associated accessories, on-site installation, training, and a 3-year warranty. The Autosorb 6300 is a high-end, sophisticated instrument that includes advanced technology such as a turbomolecular pump, a specially designed heating and cooling system, a thermal conductivity detector, a mass flow controller, and a mass spectrometer. The information gained from the Autosorb 6300 is invaluable to the department's research and will attract research funding. The price point is competitive compared to those from other manufacturers that lack the required functions.

   The special academic promotional pricing results in $60,985 in discounts through the factory-subsidized promotion.

5. Explanation of the efforts taken by the department to determine this is the only source and the efforts used to obtain the best possible price:
   We evaluated multiple commercially available characterization instruments and configurations, considering analytical capabilities, instrument integration, long-term research needs, and pricing. An extensive review of high-vacuum gas analyzers was conducted to determine whether other models and/or brands offer the required capabilities, but none were found.

Any person or entity that objects and proposes that the commodity listed is not sole source and can be provided by another person or entity shall submit a written notice to:

Jennifer Mayfield, CPPO
Director of Procurement & Contracts
jmayfield@procurement.msstate.edu
Subject Line must read "Sole Source Objection"

The notice shall contain a detailed explanation of why the commodity is not a sole source procurement. Appropriate documentation shall also be submitted if applicable.

If, after a review of the submitted notice and documents, MSU determines that the commodity in the proposed sole source request can be provided by another person or entity, then MSU will withdraw the sole source request publication from the procurement portal website and submit the procurement of the commodity to an advertised competitive bid or selection process.

If MSU determines after review that there is only one (1) source for the required commodity, then MSU will appeal to the Public Procurement Review Board. MSU will have the burden of proving that the commodity is only provided by one (1) source.