

**Hammer Mill Air Assist Baghouse and Fan
USER REQUIREMENT SPECIFICATIONS**

**Dakota Bioproducts Innovation Institute
1414 Research Park Way Brookings,
SD, 57006**

**South Dakota State University
Box 2201, SAD 200
1015 Campanile Ave
Brookings, SD 57007**

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2 SCOPE

The project will include the installation of a new Hammer mill with hammer mill air assist system. This document defines the requirements and deliverables for this system. It describes overall requirements that must be met to produce the specific equipment requested. Equipment procurement, delivery, and start-up support are included. No installation is required.

This URS is the input document for the:

- Equipment procurement purposes.
- Equipment sizing
- Functional and technical specifications.

3 BACKGROUND

The Dakota Bioproducts Innovation Institute is a research facility for the development of high-quality bioproducts. A Hammer mill has been identified as one of the size reduction technologies that will be available for customer use. The hammer mill will require an air assist system for proper operation.

4 PROCESS DESCRIPTION

An air assist baghouse filter and fan will provide a negative air draw to the hammer mill system. The bag filters inside of the baghouse will be purged with reverse air that will clean the bags of built up dust. The dust purged from the bags will fall into the hopper of the baghouse and be discharged from the baghouse through a rotary airlock. Dust collected from the air assist filter will join with the ground hammer mill product via a collection screw conveyor that will convey the sized material to a supersack or other vessel.

5 BASIS OF DESIGN

5.1 Capacities

The hammer mill air assist shall meet the needed cfm and static pressure requirements of the chosen hammer mill. Typical values are roughly 400-500 cfm airflow at a static pressure of 4-8 inches of water.

5.2 Construction

The air assist baghouse filter shall be mounted on a steel support structure. The fan for the air assist shall be mounted on the filter. Requirements for the baghouse, support structure and other component parts will be defined by the baghouse supplier, in a pre-purchase detailed proposal and drawings.

5.3 Health, Safety and Environment (HSE)

The air assist baghouse will satisfy appropriate conformity assessment procedures and the controls shall carry the UL marking. Filter to be stressed for 17" WC (1.25" Hg). The selected unit shall be provided with rupture panel style explosion vent sized using explosion testing values of Kst 114 bar-m/s and Pmax 7.2 barg.

5.4 Operation, personnel and automation

The air assist baghouse will be set up to be operated by a single operator. All controls will be housed in a single panel for purge timer, fan and airlock start/stop and E-stop.

5.5 Materials of Construction

Materials of construction for the air assist baghouse will be carbon steel with epoxy coated product contact areas. Bag cages will be galvanized carbon steel.

5.6 Reliability & maintenance

The air assist baghouse will be designed to operate routinely during 8 -12 hour grinding shift operations. All wear parts shall be easily accessible and able to be replaced on a regular maintenance schedule. Filter bags, cages, purge timer and valve components shall be stock items that can be ordered and delivered in a timely manner.

6 ABBREVIATIONS, ACRONYMS & DEFINITIONS

Acronyms	Description
ASME-BPE	American Society of Mechanical Engineers BioProcessing Equipment
BSL-1	Bio-Safety Level 1
C&Q	Commissioning & Qualification
CIP	Clean In Place
cGMP	current Good Manufacturing Practices
HVAC	Heating Ventilation & Air Conditioning
REQ	Required Attribute
OPT	Optional Attribute
PLC	Programable Logic Controller
SCADA	Supervisory Control and Data Acquisition
SOP	Standard Operating Procedures
URS	User Requirements Specification

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URS TABLE – Air Assist Baghouse		
Designation	Description	Type
URS-F1	Air assist baghouse will be capable of handling 400 cfm minimum airflow. Air to media ratio must be 5:1 or higher. Air assist baghouse to meet air requirements of selected hammer mill.	REQ
URS-F2	Air assist baghouse to be constructed of carbon steel with epoxy coating on all product contact parts. Filter to be stressed for 17" WC (1.25" Hg) minimum.	REQ
URS-F3	Baghouse hopper to be 70 degree to facilitate dust flow out of the baghouse.	REQ
URS-F4	Magnehelic gauge kit to be provided with baghouse.	REQ
URS-F5	Baghouse to include fan mounting bracket at the exhaust stub.	REQ
URS-F6	Baghouse fan will be direct drive and include motor HP capable of minimum 400 cfm at 10.5 in WC operating standard pressure. Cast aluminum preferred for MOC.	REQ

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URS-F7	Baghouse fan will include an outlet weather hood with bird screen. A slide gate damper for the outlet shall also be included.	REQ
URS-F8	Diaphragm valves and compressed air header shall be included. Compressed air source will be from within the building. Jet purge system will be provided for bag cleaning.	REQ
URS-F9	Baghouse will have provision for installation of 1-1/4" NPT high level hopper sensor.	REQ
URS-F10	Baghouse airlock shall be cast grey iron housing flanged to mate to hopper of baghouse.	REQ
URS-F11	Baghouse airlock will have sealed outboard bearings.	REQ
URS-F12	Baghouse airlock will be Class I (.004" to .007") rotor tip clearance for use as explosion blocking device. 8 vane open end carbon steel rotor preferred. Fixed relieved 1/8" land rotor tips preferred.	REQ
URS-F13	Baghouse airlock shall have individual drive gearmotor. Airlock speed will be sized and driven at a speed to provide 7.2 ft3/min displacement.	REQ
URS-F14	All drive motors and gearmotors shall be 480V, 3-phase/ 60Hz connection.	REQ
URS-F15	A control system shall be provided and consist of a control cabinet housing, start/stop switches and E-Stop.	REQ
URS-F16	Control voltage shall be 120 VAC.	REQ
URS-F17	Full system documentation shall be provided, including instruction and maintenance manuals, safety instructions, P&ID, and dimensional drawings.	REQ
URS-F18	Control system documentation shall be provided, including specifications, wiring overview, circuit diagram, arrangement drawing, terminal connection diagram	REQ

END OF SPECIFICATION**8 SELECTION CRITERIA**

Vendors will be evaluated based on the following criteria:

Evaluation Criteria		
Description	Ranking	Weight
Mandatory Technical Requirements A review of your proposal to determine adherence with the REQ specifications and technical requirements.	1-10	30%

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Proposal Pricing Review of your proposal in relation to the services offered in the proposal. Proposals will be evaluated against competing proposals for cost effectiveness. Proposals will be evaluated to be reasonable and appropriate.	1-10	20%
Technical Response The technical response in your proposal portrays knowledge, experience, and professionalism. Relevant product features and/or specifications are available with your equipment other than those mandatory specifications allotted above.	1-10	10%
Lead Time A review of your product's lead time to meet business objectives.	1-10	15%
Product Warranty The available warranty, in scope, duration, and value, proposed with your product.	1-10	5%
Experience and Demonstrated Results Our evaluation will include a review of your history, your experience as it relates to the requirements within this RFP, evidence of past performance, quality and relevance of past work, references, and related items.	1-10	20%

9 RETURN BIDS TO

Craig Arnold craig@dbii.org

Bobby Markham Bobby.Markham@sdstate.edu

10 OTHER PROVISIONS

Must meet 200 CFR buy America Provision□ Title 49 Subtitle B Chapter VI [Part 661](#)

Federal Participation Disclosure – “This project will be partially funded with Federal funds from the United States Department of Commerce, Economic Development Administration and therefore is subject to the Federal laws and regulations associated with that program.”

Must meet Federal Contract provision 200 CFR Title 2 subtitle A Chapter II [Part 200](#)

Certification Relating to Prohibited Entity

For contractors, vendors, suppliers, or subcontractors who enter into a contract with the State of South Dakota by submitting a response to this solicitation or agreeing to contract with the State, the bidder or offeror certifies and agrees that the following information is correct:

The bidder or offeror, in preparing its response or offer or in considering proposals submitted from qualified, potential vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any vendor, supplier, or subcontractor, is not an entity, regardless of its principal place of business, that is ultimately owned or controlled, directly or indirectly, by a foreign national, a foreign parent entity, or foreign government from China, Iran, North Korea, Russia, Cuba, or Venezuela, as defined by South Dakota Executive Order 2023-02. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to reject the bid or response submitted by the bidder or offeror on this project and terminate any contract awarded based on the bid or response. The successful bidder or offeror further agrees to provide immediate written notice to the contracting executive branch agency if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.

RESTRICTION OF BOYCOTT OF ISRAEL

For contractors, vendors, suppliers, or subcontractors with five (5) or more employees who enter into a contract with the State of South Dakota that involves the expenditure of one hundred thousand dollars (\$100,000) or more, by submitting a response to this solicitation or agreeing to contract with the State, the bidder or offeror certifies and agrees that the following information is correct:

The bidder or offeror, in preparing its response or offer or in considering proposals submitted from qualified, potential vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any vendor, supplier, or subcontractor, has not refused to transact business activities, has not terminated business activities, and has not taken other similar actions intended to limit its commercial relations, related to the subject matter of the bid or offer, with a person or entity on the basis of Israeli national origin, or residence or incorporation in Israel or its territories, with the specific intent to accomplish a boycott or divestment of Israel in a discriminatory manner. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to reject the bid or response submitted by the bidder or offeror on this project and terminate any contract awarded based on the bid or response. The successful bidder or offeror further agrees to provide immediate written notice to the contracting executive branch agency if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.

CERTIFICATION OF NO STATE LEGISLATOR INTEREST

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Offeror (i) understands neither a state legislator nor a business in which a state legislator has an ownership interest may be directly or indirectly interested in any contract with the State that was authorized by any law passed during the term for which that legislator was elected, or within one year thereafter, and (ii) has read South Dakota Constitution Article 3, Section 12 and has had the opportunity to seek independent legal advice on the applicability of that provision to any Agreement entered into as a result of this RFP. By signing an Agreement pursuant to this RFP, Offeror hereby certifies that the Agreement is not made in violation of the South Dakota Constitution Article 3, Section 12