



REQUEST FOR QUOTATION FORM FOR GOODS AND SERVICES

AGRICULTURAL RESEARCH COUNCIL (ARC)

1. You are kindly requested to submit a written RFQ-013840 to Agricultural Research Council as per below or attached specification.

Description			
<u>DESIGN, DELIVERY, AND INSTALLATION RACEWAY PONDS</u> ARC invites Bids for the design, delivery, and installation of a well-designed indoor Raceway Pond (algal photobioreactor) at its Silverton campus. SCOPE OF WORK AND TECHNICAL SPECIFICATIONS OBJECTIVE: To design, deliver and install a 10,000 mL algal photobioreactor system at Silverton campus, Pretoria. DESCRIPTION: The system would be a closed batch algal photobioreactor system based on artificial light LED distribution. The size of the system is 10,000 mL. The system would be employed to grow and harvest microalgae under indoor conditions of Pretoria. It includes a horizontal heating plate at the bottom and vertical vessel at the top (See Figure 1). The system also includes a harvesting mechanism whereby a tap would be opened smoothly through a mechanical system to harvest the algae settled at the bottom. SCOPE OF THE WORK: Specifications and details of the system to be set up are as described below:			
1	Parameter Selection of Material	Description - Transparent PE, LDPE and PVC are possible options. - Similar materials recommended	Design Consideration Toxic free, high strength, chemically stable, and easy to clean
2	Light properties of material	High Light transmission	75 to 95%
3	Method of mixing	- Mechanical mixers - The diameter of impeller, and	Capable of achieving uniform turbulence

		number of propellers well distributed along the shaft	throughout the system Create sufficient turbulence to avoid algal settling and formation of the dead zones occurs.
4	Sparger	Bubble diameter ranges from 3mm - 7mm and the variable flow rate	A sparger consists of small orifices which will help transfer the carbon dioxide gas into the microalgae growth medium
5	Gas transfer	- CO₂ introduced into the PBR through a sparger is distributed within the medium by bubbles. - CO₂ and its flow rate should be adjusted accordingly	During gas transfer, CO ₂ needs to be added and oxygen needs to be removed from the medium in the PBR system
6	Light	- Light-Emitting Diodes (LEDs) the spectral range of 350-750 nm 2 panels to attach 4 to 6 x LED light/panel	To play a significant role in photosynthesis and the growth of the microalgae
7	Light intensity	Measured in luminous flux in $\mu\text{mol m}^{-2} \text{s}^{-1}$	To provide different state variables to measure light quantity in the photobioreactor
8	Volume	10 000 mL	Useable volume 6000 to 10 000 mL
9	Temperature	5 - 60°C	Significant environmental factors that influence algal growth rate
10	Speed range	10 - 100 rpm	Key in the balancing of gases and pH of the system
11	Operating 0 - 13 pH	0 - 13	Materials to tolerate these pH ranges
12	Stirring element	Overhead Stirring System	To allow flexible drive shaft connecting propellers
13	Temperature control	PT 100	Good accuracy within temperature range
14	Air flow meter	One manually adjustable CO₂ and air	To control air flow into the reactor

15	Air Compressor pump	• Air Flow = 0 – 100L/Min or more • Pressure = Appropriate capacity for air circulation in photobioreactor	To pump air/carbon dioxide in the photobioreactor
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Figure 1: Picture representation of the indoor Raceway Pond (algal photobioreactor)

WARRANTY

Must include warranty period of three years

MAINTENANCE

Comprehensive maintenance plan for 5 years

Closing date : 2 September 2022 at 16:00

KINDLY ENSURE THAT YOUR COMPANY IS REGISTERED ON CENTRALISED SUPPLIER DATABASE IF NOT ,KINDLY REGISTER ON THIS WEBSITE www.csd.gov.za

2. The above specified goods/services should be delivered/rendered to:
Name of Institute : **ARC-IAE**
Address : **141 Creswell Road**
: **Weavind Park**
: **Pretoria**
3. The particulars of the guarantee that will apply to the goods quoted for,

with particular regard to the period and extent of the warranty must be clearly stated. Where services are required, service providers must submit documentation pertaining the relevant experience.

4. Your written quotation should be sent to:
Lungile Kubheka
E Mail: KubhekaL@arc.agric.za
5. All price quotations that have a rand value of R30,000-00 to R50 000 000.00 including VAT, will be evaluated by applying the 80/20 principle as prescribed by the Preferential Procurement Policy Framework Act 5 of 2000 and its Regulations. The lowest acceptable price will score 80 points, the 20 BBEE points will be allocated as follows:

B-BBEE Status Level of Contributor	80/20
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant Contributor	0

6. Standard conditions:
 - 6.1 The validity of the quotations must be indicated.
 - 6.2 Prices quoted should be in South African Rand and inclusive of VAT costs such as delivery, insurance, taxes, etc.
 - 6.3 No price adjustments or amendment of the delivery particulars contained in paragraph 2 will be considered by the ARC.
 - 6.4 The supplier accepts full responsibility for the proper execution and fulfilment of the goods/services quoted for.
 - 6.5 ARC reserves the right to accept or reject any special terms and conditions that may qualify the goods/services to be provided.
 - 6.6 Quotes should be submitted on an official letterhead and duly signed
 - 6.7 Goods and services should be supplied/rendered upon receipt of a purchase order from the ARC

- 6.8 The General Conditions of Contract issued by National Treasury are applicable.
- 6.9 The ARC supply chain management code of conduct is applicable.
- 6.10 SBD Forms must be signed and returned together with the quotation,, failure to comply will result to disqualification of your quotation.
- 6.11 Your quotation must indicate the delivery date.
- 6.12 The ARC reserve the right to do due diligence on the quotations.
- 6.13 The ARC reserve the right to benchmark prices quoted.

Compulsory requirements

- Valid tax PIN number from SARS.
- Central Supplier Database report (Current and updated CSD report) showing a tax compliant status for the duration of the bidding process.
- Complete and sign the Standard Bidding Documents (SBD forms)

Thank you in anticipation

Supply Chain Management: ARC

