



सीएसआईआर-केंद्रीय खाद्य प्रौद्योगिक अनुसंधान संस्थान  
CSIR- CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE

मैसूरु / MYSURU-570 020, भारत / INDIA

(Constituent Laboratory of CSIR, New Delhi (Ministry of Science & Technology)  
An ISO 9001:2008, ISO 14001:2004 & ISO 17025:2005, NABL Accredited Laboratory

**Corrigendum: Tender for Processing Line for Banana Products**

**Corrigendum Title: Revised Technical Specification based on PBC**

**Tender Ref: A3/74236/2022 Date: 18-10- 2022**

**Tender ID: 2022\_CSIR\_132582\_1**

The revised final specification based on the discussion in Pre Bid Conference held on 28-10-2022 @ 11.00A.M to provide equal opportunity to all OEMs has been incorporated and attached as revised specification to the original tender specification and Performance Security has been enhanced to **5%** from 3% of contract value as mentioned in original tender document.

All the prospective bidders are requested to take cognizance of the revised specification and submit their bids accordingly on or before 02.00 p.m. on 15/November/2022.

**All other tender terms and conditions of tender remain unaltered.**

**Controller of Stores &Purchase**

**CSIR-CFTRI, Mysore**

**Dt. 02-11-2022**

## Revised Technical Specification based on PBC

### Processing line for Banana products

S. No	Equipment	Capacity	Quantity (Nos.)
1.	<b>Fruit Washer</b>  Bubble type Fruit washer for fruits like Banana  Complete with SS washing tank, conveyor system, water inlet & drain with water flow control valves & circulation system, air bubbling system including air compressor of matching capacity, fresh water jets for spray, controllers, switches and all other accessories for smooth operation of the unit. All contact parts, body and support structures to be AISI 304.	250 kg/h	01
2.	<b>Fruit Sorting Table</b>  Stainless steel (14 swg) top working table for sorting of fruits, mounted on SS legs  Size: 1.8 m (L) × 0.8 m (B) × 0.8 m (H)	1.8 x 0.8 x 0.8 m	02
3.	<b>Fruit Pulper with Finisher</b>  Two stage pulper fitted one over the other for gravity feeding, and with different perforated screens for coarse (1/8) and fine pulping (1/32, 1/64) of fruits such as banana and other pulpy fruits. The unit should be mounted on a sturdy SS frame. All the contact parts are of AISI 304 construction. The supply should be complete with feed and discharge hopper, motor, starter, drive systems, switches, ladder & platform for loading fruits to coarse pulper and all other necessary accessories for complete operation of the unit.	250 kg/h	01
4.	<b>Colloid Mill</b>  Water Jacketed Colloid mill for continuous operation and comminuting/reducing the particle size of banana pulp. With arrangement to adjust the gap between Rotor and Stator and system for recirculation and draining of products. All contact parts of the mill are to be made of AISI 304. Parts to be able to dismantle easily & quickly for cleaning purpose. Complete with feed hopper, starter, safety devices and all other accessories for the smooth operation of the unit.	200-250 kg/h	01

5.	<p><b>Jacketed Kettle with Stirrer</b></p> <p>Tilting type, jacketed kettle (14 swg inner/outer) mounted on MS structure and fitted with anchor type stirrer having Teflon scrapper. Thermic fluid based (electrically heated) system with temperature sensor and controls, connected to both the kettles for heating. Fitted with a geared motor or VFD to ensure slow speed of the stirrer (6-25 rpm). Complete with tilting mechanism, pressure gauge, safety device to avoid accidental tilting, motor and gearbox. All contact parts to be AISI 304</p> <p>Total holding capacity: ~100 L</p> <p>Working volume/Charging capacity: ~70 L</p>	100 L	02
6.	<p><b>Blending Tank with Agitator</b></p> <p>Sloped bottom AISI 304 tank (16 swg) with agitator and lid for blending pulp with other ingredients. Mounted on SS legs, and on wheels for easy movement of material. The tank should have bottom drain and a flow control valve. Pitched blade type agitator to be fitted with a geared motor or VFD to maintain slow speed of the stirrer (6-25 rpm). Complete with motor, starter, switches and safety devices for smooth operation of the unit.</p>	200 L	01
7.	<p><b>Cabinet Dryer</b></p> <p>Double walled, through flow drying chamber constructed out of MS frame and sheets of suitable thickness. Electrically heated chamber provided with good insulation. Complete with electric motor, blower, heater, starter, digital temperature, time indicator and controller etc.</p> <ul style="list-style-type: none"> <li>▪ No of Trays: a) 48 Nos of 2 mm perforation SS trays b) 48 nos. of Flat SS trays (at least 18 gauge)</li> <li>▪ Material: AISI 304</li> <li>▪ Tray size: Standard: ~810 x 400 x 26 mm (approx.)</li> <li>▪ Temperature range: up to 150 °C</li> <li>▪ Accuracy <math>\pm 1^{\circ}\text{C}</math></li> <li>▪ Digital timer control</li> <li>▪ Initial Moisture (wb): 70-80%</li> <li>▪ Final Moisture (wb): 8-10%</li> <li>▪ Mode of heating: Electrical</li> <li>▪ Fan for air circulation and uniform temperature distribution inside the dryer.</li> <li>▪ Double walled chamber: Inner made of stainless steel AISI 304 grade and powder coated MS on outer surface.</li> <li>▪ Proper insulation with glass wool (at least ~60 to 75 mm) to avoid heat losses and air tight door closure arrangement</li> </ul>	48 trays	01

	<ul style="list-style-type: none"> <li>▪ Proper distribution of heating elements for uniform temperature distribution.</li> <li>▪ Digital temperature controller with display of cabinet air temperatures and display of RH.</li> <li>▪ Fresh air inlet with filter and outlet with damper control valve.</li> </ul>		
8.	<p><b>Pulveriser (with Cooling)</b></p> <p>High-speed Impact mill with screen to get banana fruit powder from dried material. All contact parts including sieves (size 20, 30, 40 mesh) to be of AISI 304. The unit to have cyclone separator, rotary discharge valve, dust collector, interconnections and one set of additional sieves. Complete with starter, switches and all other necessary accessories for the smooth operation of unit.</p>	200 kg/h	01
9.	<p><b>Slicing Machine</b></p> <p>For preparing banana slices of varying thickness. Complete with feeding tray, cutting assembly, product discharge chute and other accessories for the smooth operation of the unit.</p> <p>The unit should have the facility to change the thickness (changing the discs with blade) in the range 2, 4, 6, 8 mm. All contact parts should be of AISI 304 and complete in all respect with motor, starter, and all the other accessories for the smooth operation of the unit.</p>	200 kg/h	01
10.	<p><b>Solar Dryer</b></p> <p>Tunnel type solar dryer for drying of Banana slices</p> <p>Tunnels made of UV stabilized thermic sheet (poly houses), metal frames, door, sufficient number of air circulation fans and solar panel to support the operation of fans. It is expected to achieve a temperature of 50-55°C inside the tunnel (or at least 15-20 °C higher than ambient temperature). Complete with suitable metallic stands, perforated SS trays (~60 nos. of AISI 304 trays) for spreading material, temperature indicator, switches and other accessories for the smooth operation of the unit. The tunnel should have sufficient space for moving around for loading and unloading.</p>	100 kg of fresh material/ batch	01
11.	<p><b>Fruit Bar Cutting Machine:</b></p> <p>Suitable for cutting fruit bars ~100 mm x 25 mm sizes, with feed conveyor, SS cutters with motors, VFD for speed control, SS trays of matching size (10 nos.), all contact parts shall be of SS 304, and all other accessories required for complete operation.</p>	100 pieces per minute	01

12.	<p><b>Flow Wrap Packing Machine</b></p> <p>Flow wrap packing machine for packing banana fruit bars of 10g to 25g and Slices. Continuous packing with flexible food grade packaging material suitable for printing label and sealing.</p> <p>Provided with temperature setting arrangements for handling pouches made of different materials. The unit shall be complete in all respects, with all accessories for the smooth operation of the unit.</p>	200 pouches/h	01
13.	<p><b>Band Sealer</b></p> <p>Suitable for sealing pouches of various sizes/thickness. Complete with Conveyor, controllers and all other accessories for smooth operation.</p>	250-300 pouches/h	02

- Warranty: All the machines, including bought out items must be covered with warranty for one year (minimum).
- All brought out items are to be a standard make, eg. motor (ABB, Kirloskar, GE etc.), pump (Honeywell, Kirloskar, Havells), starter, switches, control panel (Schneider Electric, Crompton, Siemens etc.)
- Fabrication to follow all GMP guidelines and sharp edges, grooves, crevices etc., to be avoided
- All the machines must be easy to operate, clean and maintain.
- Supply is complete with all necessary items for smooth operation

**Scope of supply includes supply, installation & commissioning of equipments at CSIR-CFTRI, Mysuru and successful demonstration of its performance.**