



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: A3/74224/2021 Date: 30-10- 2021

Tender ID: 2021_CSIR_93354_1

The revised final specification based on the discussion in Pre Bid Conference held on 09-11-2021 @ 11.45A.M. at Purchase Committee Room, CSIR-CFTRI Mysuru enabling equal opportunity to all OEMs has been incorporated and given below as revised specification to the original tender specification. All bidders are requested to take cognizance of the revised specification and submit their bids accordingly on or before 02.00 p.m. on 07/December/2021.

The Firms who has already submitted their offer may resubmit their offer as per our revised final technical specification.

All other tender terms and conditions remain unaltered.

Revised Technical Specification based on PBC

Processing line for Banana products

S. No	Equipment	Capacity	Quantity (Nos.)
1.	<p>Fruit Washer</p> <p>Bubble type Fruit washer for fruits like Banana</p> <p>Complete with SS washing tank, conveyor system, water inlet & drain with water flow control valves, 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.</p>	500 kg/h	01
2.	<p>Fruit Sorting Table</p> <p>Stainless steel (12swg) top working table for sorting of fruits, mounted on MS tubular legs with adjustable base and wheels.</p> <p>Size: 1.8 m (L) × 0.8 m (B) × 0.8 m (H)</p>	1.8 x 0.8 x 0.8 m	04
3.	<p>Fruit Pulper with Finisher</p> <p>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, platform for loading fruits to coarse pulper and all other necessary accessories for complete operation of the unit. The supply should include one additional set of sieve and brushes for both the pulpers.</p>	500 kg/h	01
4.	<p>Colloid Mill</p> <p>Water Jacketed Colloid mill for continuous operation and comminuting/reducing the particle size (at least up to 5 micron) 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.</p>	250 kg/h	01
5.	<p>Steam Jacketed Kettle with Stirrer</p> <p>Tilting type, jacketed kettle (10/12 swg, inner/outer) mounted on MS structure and fitted with anchor type stirrer having Teflon</p>	150 L	02

	<p>scraper. Fitted with a geared motor or VFD to ensure slow speed of the stirrer (6-25 rpm). Complete with steam pet cock, safety valve, pressure gauge, safety device to avoid accidental tilting, motor and gearbox. All contact parts to be AISI 304</p> <p>Working pressure: 50 psig</p> <p>Hydraulic test pressure: 100 psig</p> <p>Working Volume: 75-100 L</p>		
6.	<p>Blending Tank with Agitator</p> <p>Sloped bottom AISI 308 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>	250 L	01
7.	<p>Cabinet Dryer</p> <p>Double walled, through flow drying chamber constructed out of MS frame and MS sheet of suitable thickness. Electrically heated chamber provided with glass wool insulation. Complete with electric motor, blower, heater, starter, digital temperature, time indicator and controller etc.</p> <ul style="list-style-type: none"> ▪ No of Trays: 48 Nos (16 mesh) ▪ No. of SS plain trays of 16 gauge -48 Nos ▪ Material: AISI 304 ▪ Tray size: Standard (approx) - 800 x 400 x 32 mm ▪ Temperature range: up to 150 °C , Digital timer control with 24 hour setting, ▪ Accuracy $\pm 1^{\circ}\text{C}$ ▪ Initial Moisture (wb): 70-80% ▪ Final Moisture (wb): 8-10% ▪ Mode of heating: Electrical ▪ Fan for air circulation and uniform temperature distribution inside the dryer. ▪ Double walled chamber: Inner made of stainless steel AISI 304 grade and powder coated MS on outer surface. ▪ Proper insulation with glass wool (at least ~60 to 75 mm) to avoid heat losses and air tight door closure arrangement ▪ Proper distribution of heating elements for uniform temperature distribution. ▪ Digital temperature controller with display of cabinet air temperatures and display of RH. ▪ Fresh air inlet with filter and outlet with damper control valve. 	48 trays	02
8.	<p>Pulveriser (with Cooling)</p> <p>Two stage, high-speed swing hammer 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</p>	250 kg/h	01

	starter, switches and all other necessary accessories for the smooth operation of unit.		
9.	<p>Slicing Machine</p> <p>For the slicing of fruits and vegetables like banana, papaya, carrot, beetroot, 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>Solar Dryer</p> <p>Tunnel type solar dryer for drying of Banana slices</p> <p>Tunnels made of UV stabilized thermic sheet (poly houses), metal frames and sufficient number of air circulation fans, to achieve a temperature of 60-65°C inside the tunnel (or at least 15-20 °C higher than ambient temperature) Complete with suitable metallic stands, trays (50 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	02
11.	<p>Form Fill Seal Machine</p> <p>For filling of Banana slices/powder in flexible pouches</p> <p>Auto, high-speed pouch forming, filling and sealing machine to handle 5-10 pouches/min. Four Pillow type pouch having central seal and Fin seal. Product fill ranging would be from 50– 200 g. The supply to include an inclined elevator for feeding the powder in to the feed hopper and also other necessary accessories for smooth operation. All contact parts with food material are of AISI304. Supply to include Compressor of matching capacity and reputed make for smooth operation of the unit. PLC controlled unit with other attachments such as forming Collar and Pipe, Auger screw, Ink Coding unit etc.,</p>	300-600 pouches/h	01
12.	<p>Fruit Bar Cutting Machine, suitable for cutting fruit bars ~100 mm x 25 mm sizes, with feed conveyor, SS cutters with motors, control, all contact parts shall be of SS 304, and all other accessories required for complete operation</p>	100 pieces per minute	01
13.	<p>Flow Wrap Packing Machine</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>	200 pouches/h	01

	Provided with temperature setting arrangements for handling pouches made of different materials. The unit shall be Complete with all accessories for the smooth operation of the unit.		
14.	Storage Tanks Cylindrical tank with lid (AISI 304, 12 swg) for storage of intermediate products/products. The tank should have conical bottom and bottom drain with SS control valve for discharge of material. Mounted on SS legs and Teflon wheels.	250 L	03

- Warranty: All the machines, including bought out items must be covered with warranty for one year (minimum).
- All bought out items (motor, pump, starters, switches, etc., are to be of standard make
- 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.