Short Standard Operating Procedure (SOP)

Operation of 3 Tank CIP System

Equipment: 3 Tank CIP System

Project No: SPTL-233-24-25

Manufacturer: GOMA Process Technologies Pvt. Ltd.

1. Purpose:

To outline the quick operation and cleaning procedure for the 3 Tank CIP (Cleaning-In-Place) System.

2. Scope:

Applies to operators managing CIP cleaning of process equipment using this 3 tank system.

3. Safety Precautions:

- Wear PPE: gloves, goggles, apron.
- Confirm all valves and pump connections before starting.
- Ensure chemical levels are adequate.

4. Procedure:

1. Check tanks: Alkaline, Acid, and Rinse water tanks should be filled appropriately.
2. Start the CIP cycle as per HMI/PLC interface.
3. Follow sequence:
   a. Pre-rinse
   b. Caustic wash
   c. Intermediate rinse
   d. Acid wash

e. Final rinse

4. Monitor temperature, flow, and cycle timing.

5. End cycle and drain tanks if required.

5. Post-Operation:

- Record the CIP cycle in the logbook.

- Rinse tanks if heavily soiled.

- Report issues to maintenance.

This is a short SOP for quick operator reference. Refer to the full manual for detailed maintenance and troubleshooting.

Standard Operating Procedure (SOP)

Sugar Syrup Preparation - HAGG FOODS (Litchi Basil Juice)

1. Objective

To define the procedure for the preparation of sugar syrup used in the production of litchi basil juice.

2. Scope

Applicable to the sugar syrup section of the HAGG FOODS production unit under GOMA PROCESS TECHNOLOGIES.

3. Responsibility

Production supervisor and machine operator are responsible for ensuring proper sugar syrup preparation.

4. Equipment & Instruments

- Sugar dissolver tank (2KL)
- RJM pump
- Flow meter
- Transfer pumps
- Heating source (steam)
- Storage tank

5. Materials Required

- Refined Sugar (as per batch requirement)
- Filtered Water
- Preservatives (if applicable)

6. Procedure

1. Ensure the sugar dissolver tank is clean and valves are in closed position.
2. Fill the tank with filtered water as per formulation.
3. Start the agitator and begin adding sugar gradually into the tank.

4. Start steam heating and maintain syrup temperature between 85°C to 90°C.

5. Monitor using TIC-1 and TIC-2 controllers.

6. Continue mixing until sugar fully dissolves and solution is clear.

7. Filter the syrup using inline filters.

8. Use RJM pump to transfer the syrup to the storage tank.

9. Record the batch data in the production logbook.

7. Cleaning (Post Operation)

- Flush the tank with hot water.

- Clean with approved CIP method.

- Sanitize before next batch.

8. Safety & Precautions

- Wear PPE: gloves, apron, safety glasses.

- Handle steam with caution.

- Ensure all pumps and switches are off after use.

9. Documentation

- Batch Preparation Record

- Cleaning Checklist

- Temperature Monitoring Log

Standard Operating Procedure (SOP) - Pulp Section

1. Purpose

To outline the operation of the pulp unloading and transfer section including pectin mixing tank operations in a controlled and safe manner.

2. Scope

Covers all activities involved in:

- Pulp unloading from barrels
- Transfer to processing tanks
- Pectin mixing
- Operation of associated pumps, valves, and control panels.

3. Responsibility

- Operators: To follow SOP and operate equipment safely.
- Maintenance Team: To ensure periodic checks and troubleshooting.
- Production Supervisor: To monitor and verify compliance.

4. Equipment Involved

- Barrel Unloading Pump (AODD)
- Pulp Transfer Pump 1 (3HP)
- Transfer Pump 2 (2HP)
- Pectin Mixing Tank (with VFD, 1HP)
- Control Panel with push buttons and safety interlocks
- TIC-1 for temperature monitoring
- CIP mode relays
- Pneumatic Valve SV1

5. Procedure

A. Start-Up

- Power ON: Ensure 415V, 3-phase supply is active.
- Air Supply: Confirm air is available to pneumatic lines and AFR.

- Control Panel: Turn ON main control switch.

B. Pulp Unloading

- Connect the barrel unloading line to the source.
- Turn ON AODD pump via control panel.
- Monitor pressure and flow to ensure smooth unloading.

C. Pectin Mixing Operation

- Ensure water and pectin are pre-loaded in the mixing tank.
- Use Control Panel to start the pectin mixing tank.
- Adjust speed via VFD panel if required.
- Maintain mixing for designated time as per batch requirement.

D. Pulp Transfer

- Turn ON Pulp Transfer Pump 1 (TP1).
- Route pulp to next processing tank via pipeline.
- For secondary transfer, use Transfer Pump 2 (TP2).
- Use "PROD/CIP" selector to toggle between production and CIP mode.

E. CIP Mode (Clean-In-Place)

- Activate CIP Mode Relay-1 and Relay-2 as per need.
- Flush lines and tanks with cleaning agents.
- Rinse thoroughly with water before resuming production.

6. Shutdown Procedure

- Turn OFF all pumps using the control panel STOP push-buttons.
- Close all valves and air supply to pneumatic lines.
- Turn OFF the control panel and main switch.

7. Safety Instructions

- Always check wiring and grounding before switching ON power.
- Never operate pumps dry.
- Use appropriate PPE (gloves, apron, safety shoes).

- Ensure all valves are in correct position before operation.
- In case of fault, stop the operation and inform maintenance.

8. Maintenance

- Weekly inspection of pump motors and electrical connections.
- Monthly VFD operation check and calibration of TIC-1.
- Quarterly air filter and pneumatic line check.

Standard Operating Procedure (SOP)

Operation of GOMA Beverage Blending Tank

Equipment Name: Beverage Blending Tank

Model / Item No.: GPTBB01302

Capacity: 2000 L

Agitator Speed: 170 RPM

Material of Construction (MOC): SS 304

Manufacturer: GOMA Process Technologies Pvt. Ltd.

1. Purpose

To describe the procedure for the safe and efficient operation of the GOMA Beverage Blending Tank used in beverage production.

2. Scope

This SOP is applicable to all personnel involved in the operation, cleaning, and maintenance of the GOMA Beverage Blending Tank at the processing facility.

3. Responsibilities

- Operators: Ensure the tank is operated and cleaned as per the SOP.
- Maintenance Team: Ensure regular servicing and inspection.
- Quality Control: Monitor product quality and hygiene compliance.

4. Materials and Equipment

- Beverage ingredients
- Cleaning agents (CIP chemicals)

- Personal Protective Equipment (PPE)

- GOMA Beverage Blending Tank (2000 L)

5. Safety Precautions

- Wear appropriate PPE (gloves, goggles, apron).

- Ensure the tank is properly grounded.

- Do not open the tank while the agitator is running.

- Follow lockout/tagout procedures during maintenance.

6. Procedure

6.1 Pre-Operation Check

1. Ensure the tank is clean and dry.

2. Inspect agitator blades and motor (170 RPM).

3. Verify all valves and gaskets are in place and functional.

4. Check control panel and indicators for power and faults.

6.2 Charging Ingredients

1. Open the top manhole cover.

2. Pour or pump the ingredients into the tank as per batch protocol.

3. Close the manhole securely.

6.3 Blending Operation

1. Switch on the main power.

2. Set the agitator to 170 RPM.

3. Run the agitator for the prescribed blending time.

4. Monitor temperature and mixing consistency (if applicable).

6.4 Discharge

1. Stop the agitator.

2. Open the outlet valve and transfer the blend to the next stage or holding tank.

3. Ensure complete draining.

6.5 Cleaning Procedure (CIP or Manual)

1. Rinse the tank with water.

2. Circulate cleaning agent (alkaline/acidic as required).

3. Rinse again with clean water until neutral pH.

4. Dry using hot air or allow to air dry.

7. Documentation

- Record batch details in the blending logbook.

- Note cleaning cycles and inspection dates.

- Report any deviations or maintenance needs.

8. Troubleshooting

Issue	Possible Cause	Action
Agitator not starting	Power supply issue	Check main power and motor connection
Leakage	Gasket damage	Replace gasket
Poor mixing	Blade wear or low speed	Inspect and adjust agitator

SOP: Pasteuriser System Operation

Company: GOMA Process Technologies Pvt. Ltd.

Project No.: SPTL-233-24-25

Department: Beverage Production

Machine: Pasteuriser System

Prepared For: Litchi Basil Juice / Any Juice Beverage

1. Objective

To ensure the safe and efficient operation of the Pasteurizer system for thermal processing of juice to kill pathogens and increase shelf life.

2. Scope

Applicable to the operation and cleaning of the GOMA Pasteuriser System in the juice production line.

3. Responsibilities

- Operator: Operate and monitor pasteurisation cycle.
- Production Supervisor: Verify temperature logs and compliance.
- Maintenance Technician: Regular servicing and troubleshooting.

4. Safety Precautions

- Wear gloves, apron, safety shoes, and goggles.
- Do not open hot surfaces or valves under pressure.
- Ensure all emergency stops and alarms are functional.

5. Equipment & Materials

- GOMA Pasteuriser System

- Control Panel

- Temperature sensors

- Juice input tank

- Chilled water (for cooling section)

6. Operating Procedure

A. Pre-Start Checks

1. Ensure the system is clean and CIP has been completed.

2. Check valve positions, inlet/outlet connections.

3. Confirm there is juice in the feed tank.

4. Power ON the control panel.

B. Starting the Pasteurisation Cycle

1. Set pasteurisation temperature (typically 85 degreesC to 95 degreesC depending on product).

2. Set holding time (usually 15-30 seconds).

3. Start feed pump and heat exchanger.

4. Monitor:

   - Inlet temperature

   - Pasteurisation temperature

   - Outlet (cooling) temperature

5. Ensure product reaches holding temperature before outlet valve opens.

C. During Operation

- Continuously monitor and record temperatures.

- Ensure no temperature deviation outside set range.

- Ensure flow is continuous without interruptions.

- Check for alarms or abnormal noise.

D. Stopping the System

1. Stop juice feed and flush with water.

2. Gradually bring system to cool-down.

3. Stop the heating system and record end time.

4. Clean the pasteuriser with CIP cycle.

7. Cleaning (CIP) Procedure

1. Flush system with warm water (60-70 degreesC).

2. Circulate alkali solution (2%) for 30 minutes.

3. Rinse with clean water.

4. Circulate acid solution (0.5-1%) if scale observed.

5. Final rinse with water.

6. Sanitize before next use.

8. Documentation

- Maintain logbook for:
  - Date & Time
  - Start & Stop Time
  - Temperature logs (every 10 minutes)
  - Operator name & Signature

9. Troubleshooting

Problem	Cause	Solution
Low outlet temperature	Heat exchanger failure	Check heating unit, flow rate
High pressure alarm	Blockage in outlet	Inspect and clean piping
Temperature not reaching	Heating failure	Check boiler or heating coil

SOP: Chunk Preparation Section

Company: GOMA Process Technologies Pvt. Ltd.

Project No: SPTL-233-24-25

Voltage: 440V AC Frequency: 50Hz

1. Purpose

To ensure the proper and safe operation of the Chunk Preparation Section used in fruit/vegetable processing for producing uniform-sized chunks.

2. Scope

Applicable to all operators and maintenance personnel working on the Chunk Preparation system.

3. Responsibilities

- Operator: Operate and monitor the machine safely.
- Maintenance Team: Perform preventive maintenance.
- Supervisor: Ensure SOP compliance.

4. Materials Required

- Raw fruit/vegetable (e.g., mango, pineapple)
- Clean water for washing
- Containers for output chunks

5. Personal Protective Equipment (PPE)

- Hand gloves
- Apron
- Hairnet
- Safety shoes

6. Procedure

6.1 Pre-Operation Check:

- Ensure all electrical connections (440V, 50Hz) are secure.

- Inspect the machine for cleanliness and integrity.

- Confirm emergency stop is functioning.

- Check motor, drive belts, and rotating parts.

6.2 Startup:

- Turn ON the main power supply.

- Start water supply to washing unit.

- Load the fruit into the hopper.

- Set chunk size via PID/control panel.

- Start chunk cutter.

6.3 Operation:

- Monitor chunk size and quality.

- Maintain consistent feed rate.

- Remove seeds/cores if required.

- Ensure discharge system operates smoothly.

6.4 Shutdown:

- Stop chunk cutter and water supply.

- Switch OFF main power.

- Clean all surfaces with potable water and sanitizer.

7. Cleaning & Maintenance

- Daily: Clean with warm water and sanitizer after shutdown.

- Weekly: Check blades, motor, and panel.

- Lubricate moving parts as per guidelines.

8. Safety Precautions

- Do not open safety guards during operation.

- Use PPE at all times.

- Avoid loose clothing near moving parts.

- Use emergency stop if needed and report issues.

Standard Operating Procedures (SOP) - Beverage Industry

1. Sugar Syrup Preparation

- Clean and sanitize equipment.
- Fill dissolving tank with water.
- Heat to 70-80°C.
- Gradually add sugar while stirring.
- Ensure complete dissolution.
- Filter and cool.
- Transfer to blending tank.

2. Sugar Storage Tank SOP

- Store sugar in clean, dry, pest-free area.
- Use pallets to avoid floor contact.
- Ensure FIFO (First In First Out) system.
- Record stock movement daily.

3. Blending Tank SOP

- Sanitize tank before use.
- Pour prepared sugar syrup.
- Add required ingredients (pulp, pectin, color, flavor).
- Mix for 20-30 mins to uniformity.
- Record batch details.

4. Pulp Tank SOP

- Store pulp under refrigeration (0-5°C).
- Ensure pulp is sealed in clean containers.
- Before use, inspect for spoilage or off-odors.

5. Pectin Tank SOP

- Mix pectin in hot water (60-70°C).
- Stir continuously to avoid lumps.
- Use immediately after preparation.

6. Colour & Flavor Addition SOP

- Measure accurately as per batch sheet.
- Add to blending tank after initial mixing.
- Stir gently for uniform distribution.

7. Homogenization SOP

- Feed blended mixture into homogenizer.
- Maintain pressure at 150-200 bar.
- Output should show no phase separation.
- Clean equipment after each batch.

8. Pasteurization SOP

- Heat product to 85-90°C for 15-30 seconds.
- Cool rapidly to below 10°C.
- Monitor temperature using calibrated thermometer.

9. Chunk Preparation Tank SOP

- Soak and clean chunks.
- Heat if required to soften.
- Mix with portion of syrup for flavor absorption.
- Add to final blended product post-homogenization.