

STANDARD OPERATING PROCEDURE – Orange Juice Production

INTRODUCTION

Orange juice is prepared from a concentrate, pasteurized, and then packaged for wholesale and retail distribution.

MATERIALS

1. Supplies
 - a. Sanitizer
 - b. Swabs that detect milk protein
 - c. Orange juice concentrate
 - d. Brix refractometer
 - e. Chart paper
 - f. Record of manufacture form
2. Hazards
 - a. Burns from hot water and hot metal.
 - b. Corrosive damage to eyes and skin from sanitizer. Wear goggles and gloves when using the concentrate. Avoid breathing the vapors.

PROCEDURE

1. Pre-production sanitation
 - a. Discard the sanitizing solution that was held in the filler bowls, allowing it to flow through the filler tubes and onto the floor.
 - b. Prepare at least 300 gallons of sanitizing solution in a mixing tank. Test the concentration and record the result on the sanitation test record.
 - c. Pump the sanitizing solution through the lines leading to the HTST, through the HTST, and then to the tank that will be used for orange juice production. Finally, pump the sanitizing solution from the orange juice production tank through the lines to the fillers, allowing it to overflow the bowls and to flow through all of the filler tubes and then onto the floor.
 - d. Start the HTST and pasteurize some water. Run this water through the lines leading to the tank that will be used for orange juice production, then through the lines to the fillers. Allow the pasteurized water to overflow the bowls and to flow through all of the filler tubes and then onto the floor.
 - e. Swab food contact surfaces. If results indicate the presence of milk protein residues repeat the sanitation procedure.
2. Production
 - a. Allow the frozen orange juice concentrate to thaw at < 40°F.
 - b. Prepare charts and start them recording the pasteurizing conditions and the temperature of the pasteurized storage tank.
 - c. Pump some soft water into the mixing tank.
 - d. Add the orange juice concentrate and mix with high agitation.
 - e. Pump the orange juice through the HTST at a minimum of 161°F and a holding time of at least 15 seconds. The pasteurized juice should be directed into the pre-sanitized pasteurized storage tank.
 - f. Pasteurize the remaining volume of soft water and add this to the pasteurized storage tank.
 - g. With cooling and high agitation turned on, mix for at least 30 minutes.
 - h. Taste the juice and check the Brix. The Brix reading should be between 11.8 and 12.2
 - i. Fill containers and store them at < 40°F.

RECORDKEEPING

1. Each day that orange juice is prepared a record of manufacture form should be filled out. This will specify the ingredients used, the volume of juice made, and the results of the milk protein residue test.
2. Charts should be used to record the pasteurization conditions as well the temperature of the pasteurized storage tank.
3. Record the results from the sanitizer concentration assays on the weekly sanitation test form.
4. Retain all records for at least two years.

REFERENCES

1. Penn State Berkey Creamery Juice HACCP Plan (most recent version).
2. SOP 005 Chart Usage

The following individual is responsible for implementation of this SOP and has the overall authority on-site:

Name: _____ Title: _____ Date: _____