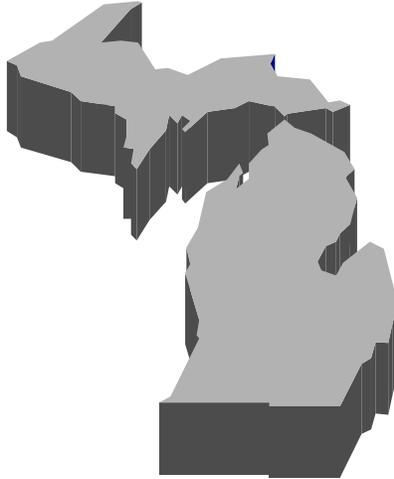


**MICHIGAN DEPARTMENT OF AGRICULTURE
FOOD AND DAIRY DIVISION**



**— SAMPLE —
SANITATION STANDARD OPERATING PROCEDURES
(SSOPs)**

Developed for a hypothetical cider mill called

 **Fresh Apple Cider Mill**
Lansing, Michigan

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— **SAMPLE** —
SANITATION STANDARD OPERATING PROCEDURES
(SSOPs)

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TERMS COMMONLY USED IN SSOPs

(Definitions are for the purposes of this document)

CHLORINE	A chemical used (in the form of hypochlorites) in sanitizing solutions.
CLEAN	Free of visible soil including food particles and dirt
CLEANING	Removal of soil and food matter from a surface
CLEANING AGENT	A chemical compound specifically formulated for use on floors, walls, equipment, and food-contact surfaces
EMPLOYEE RULES & GUIDELINES	Policies written by the management covering personal hygiene, prohibited practices, and safe food handling methods for all employees
FOOD CONTACT SURFACES	Any surface of equipment or utensils which food products directly or indirectly contact
HARBORAGE	Shelter for pests and vermin (e.g., tall grass, unused equipment)
IODINE	A chemical used in some sanitizing solutions. It can be used only in solutions that have a pH below 5.0
PARTS PER MILLION (ppm)	A unit of measure for water hardness and chemical sanitizing solution concentrations
PASTEURIZATION	A process that kills most disease-causing bacteria with minimal chemical change in foods and beverages and slows down the growth of other bacteria by heating the product to a specific temperature for a specified length of time
pH	A measure of acidity or alkalinity of a medium (such as food products or cleaning agents) based on a scale of 0 to 14.0. Acid pH ranges from 0 to 6.9 and basic pH ranges from 7.1 to 14.0 [p(otential of) h(ydrogen)]
POTABLE	Safe to drink, as in describing a water supply

QUATERNARY AMMONIUM COMPOUNDS (QUAT)	Chemicals in noncorrosive chemical sanitizing solutions. Quats can be effective in both acid and alkaline solutions, but may be more selective than other sanitizers.
SANITATION	The creation and maintenance of conditions designed to protect public health
SANITIZATION	The reduction of the number of disease-causing microorganisms to safe levels on clean food contact surfaces
SURFACTANTS	Components (surface active agents) in detergent that reduce surface tension at the points where the detergent meets the soiled surface, which then allows the detergent quickly to penetrate and disperse the soil
TRAINING	Teaching employees through a variety of methods how to do a specific job properly
TRAINING PROGRAM	A structured sequence of information and activities to teach proper methods and how to do specific tasks.

— **SAMPLE** —
SANITATION STANDARD OPERATING PROCEDURES (SSOPs)

SSOP MISSION STATEMENT

This SSOP outlines how our mill complies with sanitation standards and Good Manufacturing Practices. By maintaining cleanliness of the cider processing area, we enhance the safety and quality of our cider. This SSOP is a prerequisite for our Hazard Analysis and Critical Control Points (HACCP) program.

SSOP GUIDELINES

The SSOP will require the cooperation of all our employees to ensure that it is carried out. The Cider Production Manager (_____) will enforce the standards set by the SSOP program. Responsibilities will include visual inspection of manufacturing and cleaning procedures, filling out of records, and microbiological lab testing. The manager's other duties include general supervision of employees.

The SSOP will involve all employees of juice operations at *Fresh Apple Cider Mill*. Employees will be involved in day-to-day cleaning & sanitation, apple cider production, and completing records. The Owner (_____) of the cider mill will also be involved in day-to-day operations. His responsibilities include the supervision and direction of the production manager, purchasing, produce and quality assurance.

The following is a list of the people involved in the cider production process. As an employee of juice operations you will be required to read the SSOP and follow its guidelines. Your signature next to your name means that you have read and understand the SSOP.

1998 employees:

Owner: _____ signed **X** _____

Production
Manager: _____ signed **X** _____

Operators: _____ signed **X** _____

_____ signed **X** _____

REQUIRED SAFE FOOD HANDLING PRACTICES FOR ALL EMPLOYEES

1. Hands are to be thoroughly washed with soap and water, and dried at the following times or as needed:
 - ❑ When reporting to work
 - ❑ After a break period
 - ❑ After smoking, eating or drinking
 - ❑ After using toilet facilities
 - ❑ After coughing or sneezing and covering mouth with hand
 - ❑ After blowing the nose, or after touching nose, mouth, ears, eyes or hair
 - ❑ After handling anything, other than product or product contact areas that may contaminate their hands

Thorough washing means vigorously rubbing together the surfaces of lathered hands and exposed portions of arms for at least 20 seconds followed by thoroughly rinsing with clean water. Particular attention should be paid to the areas underneath fingernails and between the fingers. No common towels will be used to dry hands.

2. Eating, drinking, and personal grooming is prohibited in apple cider processing areas. Designated areas will be set aside for lunch breaks.
3. A proper hair restraint (cap or hairnet) is to be worn when working with or handling cider apples, pomace, unbottled cider, and packaging materials.
4. Smoking and other uses of tobacco in processing areas are prohibited.
5. Clean clothing is to be worn at the start of each day. Clothing should be changed as often as necessary to maintain cleanliness. Soiled garments are unacceptable in the cider processing area. Sanitary work garments will be provided as necessary.
6. Rubber boots and other footwear worn in the processing area must be kept clean.
7. No jewelry or wristwatches may be worn in the press room.
8. Employees with diarrhea, boils, open sores, cuts, burns or skin infections shall not be permitted to process cider, handle raw fruit or handle packaging materials.

PRE-OPERATION CLEANING AND SET UP

Fresh Apple Cider Mill employees will follow these procedures to ensure that our facility and equipment are sanitary and in good working order prior to beginning production each day.

Prior to start up:

1. Mill and equipment will be inspected for cleanliness and presence of foreign objects and to ensure that food contact surfaces are visibly clean. If surfaces are not visibly clean...

Note: Identify, here or in a checklist, the specific procedures you follow. Procedures should be consistent with the sanitation principles identified in the introduction.

2. Food contact surfaces will then be sanitized and rinsed. See Pre Cleaning checklist for specifics. The checklist clipboards are to be hung on the office wall.

Notes:

- A. Identify, here or in a checklist, the specific procedures you follow. These should be consistent with sanitation principles identified in the SOP Guide.
 - B. Follow the manufacturer's instructions for all chemicals used.
 - C. Identify procedures for each piece of equipment.
3. Equipment is then assembled and checked for proper operation.
 4. Employees will document their pre-op cleaning and set activities using the checklist. Refer to the checklist for specific set-up procedures. Employees will initial the checklist by each responsibility.
 5. Prior to beginning operation, the production supervisor will verify the sanitation status of the mill area. If sanitation is acceptable he will document his approval by initialing the checklist. If unacceptable, he will contact the responsible employee(s) for corrective actions and document those actions on the checklist. The production supervisor is responsible for filing the completed form.
 6. The owner will review checklists at the end of each week.

DAILY OPERATIONS AND ROUTINE CLEANING

Continuous cleaning is necessary to maintain an orderly and sanitary processing area.

1. Apples will be inspected on an uninterrupted basis to ensure that rotten, severely damaged, or wormy apples are discarded and not processed.
2. Processing areas and tank room shall be swept or picked up as needed to keep those areas free of apples, leaves, and rubbish.
3. Trash receptacles will be kept covered and dumped as often as necessary to prevent insect or rodent attraction. Empty and clean receptacles at the end of each production day at a minimum.
4. Cider press cloths will be kept on the rack between uses and will never be permitted to touch the floor or other contaminated surfaces.
5. Jug filling pump and lines will be thoroughly cleaned and sanitized prior to use.
6. Cider jugs and caps will be kept off the floor and in their original containers until used. Employees filling jugs will faithfully follow all hand washing procedures.
7. Pomace disposal procedures.

Note: List here those procedures which will ensure timely removal of pomace from the production areas and not establish conditions which attract pests.

8. Float Tank Management:

Note: Identify, here or in a checklist, the specific procedures you follow. They should be consistent with the sanitation principles identified in the SOP Guide. Procedures will vary from processor to processor.

Additional topics which may have to be addressed:

- Frequency of water change and criteria used to determine when a change is necessary
- Frequency of leaf removal from screens to prevent excess accumulation

Here is one example of float tank management procedures:

The float tank chlorine level shall be tested with litmus strips located at the sorting station. A test shall be taken hourly at a minimum. Results shall be recorded on the "Cider Production Records" form. The target range for float tank is between 100 - 200 ppm of free chlorine. If tank water falls below target range, add chlorine as necessary and retest. The tank should be drained and cleaned every _____ during peak season. During the off-season the flume tank should be cleaned after two days of pressing.

9. Cider bulk tank management:

Note: Identify here or in a checklist the specific procedures you follow. Procedures will vary from processor to processor.

Here is one example of cider bulk tank management from one producer's SSOP:

Cider bulk tanks will be cleaned and sanitized once a tank is emptied. Bulk tanks are rinsed down with a hose sprayer so that they are visibly clean. Tanks are then sanitized with a solution of 2 tablespoons common household bleach and 1 gallon of water in a 1-gallon hand sprayer. Check free chlorine levels with test strips that are located in the sanitation supplies cabinet. Free chlorine level must be between 100 and 200 ppm. All surfaces should be sprayed down with the solution and allowed to stand for 3 minutes. Rinse down all surfaces after stand time.

POST OPERATIONS CLEAN UP

Identify, here or in a checklist, the specific procedures you follow. They should be consistent with the sanitation principles identified in the SOP Guide.

1. Refer to the checklist for specific procedures to follow.
2. Remove all apples and debris from the area and equipment.
3. Disconnect power to equipment. Follow approved power lockout procedures.
4. Where necessary, protect electrical connections and sensitive parts of equipment from water.
5. Disassemble _____ (Specify which piece of equipment) as outlined.
6. Wash down all equipment and processing with warm (120° -130° F) water to remove remaining solids.
7. Apply warm detergent solution (120° -140° F) and scrub as necessary to remove soil.
8. Rinse away detergent and loosened soil with warm water (120°-140° F).
9. Inspect for effectiveness of cleaning. Reclean if necessary.
10. Apply sanitizer (180° F water or chemical sanitizer) to product contact surfaces.
11. Rinse (if required).

SAMPLE PROCEDURES FOR COMMONLY USED EQUIPMENT

RACK & PRESS

1. The following procedure will be used without variation at the end of each production day, after custom pressings and prior to start-up after more than two days of being down. This procedure should take approximately 25 minutes to perform. This example uses a rinse sanitizer.
2. Sweep surrounding area to remove twigs, leaves, pomace, and any other debris.
3. Rinse down the equipment with hot or warm water.
4. Prepare a 5-gallon white bucket of CLEANING SOLUTION per the manufacturer's directions
5. Using the designated food contact surface brushes with white handles thoroughly scrub the press, racks, frames and tray with the cleaner solution. Keep all equipment off the floor. Pay careful attention to ensure all undersides of equipment are scrubbed with cleaner.
6. Rinse equipment thoroughly with hot or warm water to remove the cleaning solution. Visually inspect to ensure all food particles and other organic matter has been removed. If soils have not been removed repeat step 4.
7. Prepare the sanitizing solution according to manufacturer's directions in the hand pump sprayer. Check sanitizer level with test strips to ensure the proper level (between x & y ppm). Adjust the concentration if necessary.
8. Spray sanitizer solution on all surfaces allowing solution to drip off of equipment. Follow manufacturer's instructions for contact time.
9. Rinse off sanitizer solution with potable water (if required).
10. Fill out the checklist and turn it into your supervisor.

FILLER

The filler shall be disassembled, hand cleaned, and hand sanitized after each production run and between custom pressings. Follow the procedure without variation. It should take approximately 30 minutes to perform. This example uses a no-rinse sanitizer.

1. Check the filler area to ensure surrounding debris (leaves, twigs, apples and dirt) has been removed from floor area.
2. Cover all motors and electrical panels following manufacturer's recommendations.
3. Rinse filler and associated equipment with warm water.
4. Remove the filler bowl lid, float, valves, gaskets and o-rings. Rinse all parts clear of any remaining product using hot or warm water.
5. Prepare a 5-gallon white bucket of CLEANING SOLUTION per the manufacturer's directions.
6. Using the white-handled brushes designated for food contact surfaces, scrub the outside and inside of the filler bowl with the cleaning solution. Be certain the solution is applied to the underside of the filler bowl.
7. Rinse off the cleaning solution thoroughly with hot or warm water.
8. Inspect the rinsed areas to ensure that all exposed surfaces have been properly cleaned.
9. Prepare sanitizer solution in 1-gallon hand pump sprayer according to manufacture's directions. Test sanitizer solution with litmus strips to ensure the proper concentration (between X and Y ppm).
10. Spray Filler bowl inside and outside with sanitizer solution so that solution drips off of the equipment.
11. Prepare 3-compartment utensil sink with cleaner solution, warm rinse water, and sanitizer solution.



12. Follow the manufacturer's directions for cleaner and sanitizer. Test sanitizer concentration with litmus strips to ensure concentration between X and Y ppm.
13. Thoroughly scrub the filler components using the designated food contact brushes, rinse them in warm water and visually inspect to ensure all product residues and soils have been removed. If any type of soil remains, reclean the parts as necessary.
14. Fill out the check list and turn it in to your supervisor.

WET BRUSHER

The following procedure will be used without variation clean and sanitize the wet brusher after lunch break, between custom pressings, at the end of production, and prior to start up after more than two down days. This procedure should take approximately 10 minutes to perform.

1. Sweep the surrounding area to remove any debris (twigs, apples, leaves, &c). Remove by hand any debris or other organic material from the inside and outside of the wet brusher.
2. Using the high-pressure washer, rinse the top of the wet brusher.
3. Insert the nozzle of the high-pressure washer into the wet brusher and thoroughly rinse the inside top surface, the water nozzles, and brushes.
4. Remove by hand any remaining debris or other organic matter not removed by the high-pressure washer. Brushes must be free of visible debris.
5. Prepare a 5-gallon white bucket of CLEANING SOLUTION per the manufacturer's directions.
6. Using the designated food contact surface brushes, thoroughly brush all inside and outside surfaces.
7. Using the high-pressure washer, rinse all outside and inside surfaces to remove all of the cleaner solution.
8. Visually inspect the inside and outside of the machine to ensure that of soil has been removed. Water dripping off the machine should be clear.
9. Prepare sanitizing solution according to the manufacturer's directions. Test the concentration with litmus strips Adjust the sanitizer concentration if necessary.
10. Using the hand sprayer, apply sanitizer to all surfaces so that sanitizing solution drips from the equipment.
11. Rinse or allow to air dry following manufacturer recommendations.
12. Complete the checklist and turn it in to your supervisor.

Additional Points to Remember when writing Post Operation Cleaning /Sanitizing Procedures

- A high-pressure washer will likely not effectively clean hard-to-reach areas and equipment that must be disassembled. The SSOP should identify which pieces of equipment must be disassembled and give detailed instructions on how to do so. The most effective means of cleaning equipment of this nature is by manual cleaning with a food grade detergent and brush.
- Procedures will have to be updated in accordance with any changes in your process.
- Your SSOPs should be updated whenever new chemicals are used.
- These procedures should be able to stand alone. Someone familiar with your operation should be able to read your procedure and perform the task.
- All chemicals come with Material Safety Data Sheets (MSDS). According to the federal “Right to Know” law you must have all MSDS posted in an appropriate location for study by employees. Any new MSDS sheets acquired must also be posted.
- Section 6 of any given MSDS will recommend protective equipment and exposure control methods that are important in developing your procedures. Your chemical supplier is an important resource in regards to MSDS questions.
- Floor drains should be cleaned daily or more frequently. Improperly trapped drains or clogged drains can be a source of contamination and odor.
- Floors, walls and ceilings should be washed routinely to avoid buildup of soil, microbial and mold densities and to prevent staining and avoid obnoxious odors.
- Conveyors must be cleaned by hand with a brush and detergent that contains a surfactant. All leaves twigs, apple pieces and soil must be removed before washing, rinsing, and sanitizing of the conveyor can take place. Conveyors should be free from all organic residues after the above process.

PEST CONTROL PROGRAM

We will not tolerate contamination of our cider by insects, rodents, birds or their fecal material. Under no circumstances will the presence of birds or rodents be tolerated in processing or apple storage areas. The following items will be followed in order to minimize insect, rodent and bird problems.

- The production supervisor is responsible for maintaining our insect and rodent control program.
- Conditions inside and outside of our mill will be so maintained as to keep pest populations to a minimum.
- The grounds will be kept free of stagnant water, tall weeds, apple pomace, and unused equipment.
- Pallets of apples will not be stored outside.
- Exterior doors will be kept closed when not in use,
- Raw materials will be inspected for signs of pest infestation.
- Pest access to the mill will be reduced by patching holes in walls, cracks in floor/-wall junctions.
- Chemical control of insects will be performed following label directions. Only insecticides labeled for use in food plants will be used inside the building.
- Bait stations for rodent control will be utilized. Outdoor bait stations and traps will be placed around the perimeter of the mill. Each bait station will be numbered and the location of each station will be indicated on a diagram kept in the production supervisor's office.
- Each bait station shall be inspected for signs of rodent activity at least twice a month. Active stations (containing gnawed bait and/or rodent droppings) will be cleaned and supplied with fresh bait at the time of inspection.
- Bi-monthly bait station inspections will be documented using the Rodent Control Log Sheet. Log sheets will be on file for one year.

- Food sources around the perimeter of the plant that attract birds and rodents shall be removed.
- We will discourage the presence of birds in immediate proximity to the building by destroying nests whenever they are discovered in or on the building.
- We will eliminate perches on exterior elements of the building and will keep all entrances closed or screened to exclude flying pests.
- Any birds that succeed in gaining access to the building will be removed immediately.
- If roosting or nesting birds become a problem and physical elimination is not possible or practical, chemical control will be used. These chemicals must be approved for use near a processing plant and label directions will be followed explicitly.
- Pest control chemicals approved for use:
 - Warfarin Mouse Bait Pellets (Corp. A)
 - Parafin Bait Blocks (Corp. B.)
 - Insecticide (Corp. C)
 - Glue Boards
- Material Data Safety Sheets will be maintained in the master MSDS book in the production office. No chemical shall be used without first obtaining a MSDS and the user of the chemical being fully knowledgeable in the safe use of that chemical.

RECALL AND TRACEABILITY

Production records will be maintained so that, in the case of a recall, we will know exactly what lots of cider are in the market place, how many bottles were produced, and possibly where the product went after leaving our establishment. We will keep all records together in a file by date in the manager's office

- All batches and tanks of fresh apple cider will be assigned a lot number or other records will be maintained to track the identity of cider produced.
- The supplier(s) of the apples used for each lot will be recorded.
- A sell-by date will be assigned to each day's production and applied to the bottle via a pricing gun on the cap.
- Daily records will be kept regarding the quantity of cider and sell by date(s) shipped to our various customers.

SSOP CORRECTIVE ACTION PLAN

1. the production manager will monitor all cleaning and sanitizing activities to ensure that these SSOPs are followed.
2. Cleaning and sanitation failures will be listed in the *Deficiencies and Corrective Action* section of the cleaning checklist.
3. A statement will also be listed in the same section of what corrective measure to take.
4. Corrective measures will take place right away or prior to start up the next day depending on severity.
5. If a problem is recurrent, appropriate retraining of personnel may be necessary.
6. Cleaning checklists will be filed at the end of each week and located in the HACCP log.

Example 1

Pre-operation Cleaning & Set-up Checklist

Today's date: _____ Last day of Production: _____

Employees responsible: _____

		YES	NO	Initials
1	Equipment visually clean			
2	Equipment requires re-cleaning and/or sanitizing			
3	Re-cleaning and/or sanitizing performed			
4	Reassemble equipment			
5	Sanitizer applied; ppm			

Corrective Actions:

Supervisor signature: _____

Example 2

Daily Operations / Routine Cleaning

Today's date: _____

Employees responsible: _____

		YES	NO	Initials
1	Apples visually inspected			
2	Processing room / bulk tank room picked up/swept			
3	Trash receptacles dumped, cleaned, sanitized			
4	Cider cloths off floor on holding rack			
4a	Re-clean touched non-food contact surface			
5	Packaging materials off of floor			
6	Pomace removal after each press			
7	Float / flume tank sanitizer concentration check every hour			

Corrective Actions:

Supervisor signature: _____

Example 3

**Post Operation Cleaning/Sanitizing
RACK AND PRESS**

Today's date: _____

Employees responsible: _____

		YES	NO	Initials
1	Surrounding area free from debris			
2	Equipment rinsed down			
3	Equipment scrubbed inside/outside			
4	Equipment rinsed down			
5	Visually inspect (If food particles or debris remain, repeat #3 above)			
6	Sanitizer concentration			
7	Flood equipment with sanitizer			
8	Rinse equipment with water			

Corrective Actions:

Supervisor signature: _____

Example 4

**Post-Operation Cleaning/Sanitizing
WET BRUSHER**

Today's date: _____

Employees responsible: _____

		YES	NO	Initials
1	Surrounding area free from debris			
2	Rinse top, inside, outside of wet brusher			
3	Remove by hand and remaining debris			
4	Scrub with cleaner and food-grade brushes top, inside, Outside of wet brusher			
5	Rinse inside / top / outside			
6	Visually inspect a.) free from organic matter b.) water clear			
7	Sanitizer solution concentration (PPM)			
8	Sanitizer sprayed on equipment , allowed to drip off			

Corrective Actions:

Supervisor signature: _____

Example 5

**Post Operation Cleaning/Sanitizing
FILLER**

Today's date: _____

Employees responsible: _____

		YES	NO	Initials
1	Surrounding area free from debris			
2	Covered motors / electrical panels			
3	Rinse down equipment			
4	Dismantle filler			
5	Scrub inside / outside of filler with cleaner			
6	Rinse filler			
7	Visually inspect			
8	Sanitizer concentration (PPM)			
9	Sanitizer applied, allowed to drip off food contact surfaces			
10	Utensil sink sanitizer concentration (PPM)			
11	Parts washed, rinsed, sanitized, air dried			

Corrective Actions:

Supervisor signature: _____



MSDS APPENDIX

Section 1 Place Cleaners & Sanitizers MSDS here

Section 2 Insecticides & Rodenticides MSDS here