

ABC RESTAURANT

123 Main Street
Minneapolis, MN 55401

HACCP PLAN
For fermentation/acidification

SOPs:
Cleaning and Sanitizing
Employee Practices
Procedures
Training Program

July 16, 2016

Product Steps/Description

Provide product names, ingredient lists, formulations and recipes. You must provide additional scientific documentation required by the regulatory agency, addressing the food safety concerns involved for this HACCP activity.

Product names, ingredient lists, formulations and recipes

Yogurt

The recipe used is a standard recipe and process from the Alaska cooperative Extension Service at [Making Yogurt at Home](http://www.uaf.edu/files/ces/publications-db/catalog/hec/FNH-00062.pdf) (<http://www.uaf.edu/files/ces/publications-db/catalog/hec/FNH-00062.pdf>).

Ingredients:

- 1 gallon Grade A pasteurized, whole or low-fat milk
- 1 cup starter culture* (prepackaged plain yogurt with live and active culture such as *Lactobacillus bulgaricus*, *Lactobacillus acidophilus* and/or *Streptococcus thermophilus*)
- 1 1/3 cups nonfat dry milk powder
- 1/4 cup sugar
- 1 tablespoon unflavored gelatin (produces a thick, firmer yogurt)

*May substitute with dry starter according to package directions, one 5-gram package per quart of milk.

Directions:

1. POUR milk into stainless steel pot.
2. STIR in nonfat milk powder, sugar, and gelatin (pre-softened in a little milk for five minutes).
3. HEAT milk to 185°F to 200°F over low heat, stirring gently.
4. HOLD milk at 185°F to 200°F for 20 minutes (makes a thicker yogurt). Do not allow to boil. Stir gently to avoid scorching.
5. COOL milk rapidly by removing pot from burner and placing pot into cold ice water until milk cools to 112°F to 115°F.
6. PREPARE starter culture by removing 1 cup of the warm milk and combining with starter culture in a small bowl. Add this mixture to the rest of warm milk and lightly stir. The temperature of the mixture should now be 110°F to 112°F.
7. INCUBATE for four to six hours at 110°F (plus or minus 5°F). Incubating yogurt for several hours after the yogurt has set will produce more acidity. This will result in a more tart or acidic flavor and eventually cause the whey to separate.
8. TEST pH to confirm pH of 4.5 or less after incubating for a maximum of six hours. Yogurt should set firm with a mild flavor when proper acid level is achieved.
9. COOL yogurt rapidly in cold ice water bath to 41°F or less.
10. STORE the yogurt in the refrigerator at 41°F or less.

Storage

Storage method	Maximum time products will be stored
Refrigerated storage (41°F or less).	Product kept up to 21 days from preparation date.

Equipment and materials

(Include make, model and specification sheet)

Equipment and materials	Manufacturer information, model numbers, and other equipment specifications
Stoves	
Stainless steel pot with lid	
Kitchen utensils: stirring spoons, ladle, measuring cups and teaspoons	
Walk-in cooler	
Timer	
Clock	
Thermocouple thermometer	
pH meter	
Distilled water	
Buffer solution 4.0	
Buffer solution 7.0	
Cups for pH testing	
Incubator	

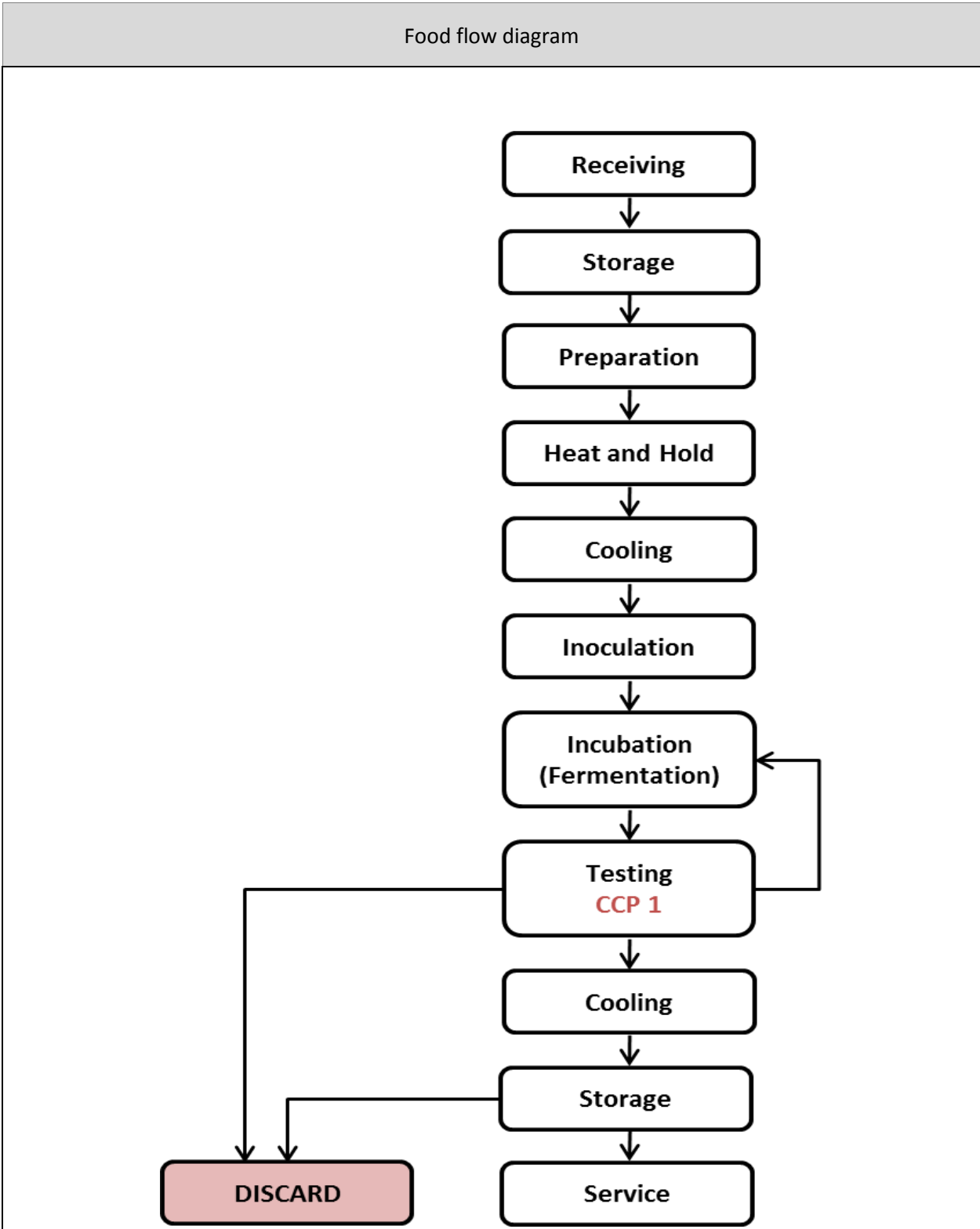
HACCP team members

NAME

TITLE/ROLE

Food flow diagram

Provide a written flow diagram for foods covered in this HACCP plan. You must identify process steps from receiving through service. You must identify the critical control points (CCPs) on the flow diagram.



Hazard analysis

You may use the chart below to conduct and document your hazard analysis. Your HACCP plan must include CCPs for each identified hazard.

Step from food flow diagram.	Identify potential biological (B), chemical (C), and physical (P) hazards introduced, controlled, or enhanced at this step.	Are any potential food safety hazards significant? (Yes/No)	Justification for decision.	What preventive measure(s) can be applied for the significant hazards?	Is this step a CCP? (Yes/No)
Receiving	(B) Heat resistant psychrotrophic spore-forming bacteria (e.g., <i>Bacillus</i> and <i>Paenibacillus</i>) (C) Not applicable (P) Not applicable	No	Milk and milk products will be received pasteurized from approved suppliers at proper temperatures. In pasteurized milk, psychrotrophic spore-forming bacteria do not become apparent in most cases until later in shelf life. All other products will be purchased from approved suppliers and received at proper temperatures.	Control measures: Standard operating procedures (SOPs)	No
Storage	(B) Heat resistant psychrotrophic spore-forming bacteria (e.g., <i>Bacillus</i> and <i>Paenibacillus</i>) (C) Not applicable (P) Not applicable	No	All products will be immediately stored in coolers and dry storage areas at proper temperatures. In pasteurized milk, psychrotrophic spore-forming bacteria do not become apparent in most cases until later in shelf life.	Control measures: SOPs	No
Preparation	(B) Yeast and mold (mycotoxin)	Yes	Potential introduction and growth of pathogens or yeast and mold due	Control measures: SOPs	No

Step from food flow diagram.	Identify potential biological (B), chemical (C), and physical (P) hazards introduced, controlled, or enhanced at this step.	Are any potential food safety hazards significant? (Yes/No)	Justification for decision.	What preventive measure(s) can be applied for the significant hazards?	Is this step a CCP? (Yes/No)
	(B) Pathogens (e.g., <i>Staphylococcus aureus</i> , viruses) (P) Foreign material		to cross-contamination. Potential introduction of viruses. Foreign material could be introduced during preparation of ingredients.		
Heat and Hold	(B) Yeast and mold (mycotoxin) (B) Pathogens (e.g., <i>Staphylococcus aureus</i> , viruses)	Yes	Potential survival of pathogens, viruses or yeast and mold if products are not thermally processed to correct temperature and time according to the standard recipe.	Control measures: SOPs	No
Cooling	(B) Yeast and mold (mycotoxin) (B) Pathogens (e.g., <i>Staphylococcus aureus</i> , viruses)	No	Potential introduction and growth of pathogens or yeast and mold due to cross-contamination is not likely. Potential introduction of viruses is not likely.	Control measures: SOPs	No
Inoculation	(B) Yeast and mold (mycotoxin) (B) Pathogens (e.g., <i>Staphylococcus aureus</i> , viruses) (P) Foreign material	Yes	Potential introduction and growth of pathogens or yeast and mold due to cross-contamination. Potential introduction of viruses. Foreign material could be introduced during preparation of ingredients.	Control measures: SOPs	No
Incubation	(B) Yeast and mold (mycotoxin)	Yes	If fermentation is not successful, pathogen growth is possible during	An acceptable standard recipe will	No

Step from food flow diagram.	Identify potential biological (B), chemical (C), and physical (P) hazards introduced, controlled, or enhanced at this step.	Are any potential food safety hazards significant? (Yes/No)	Justification for decision.	What preventive measure(s) can be applied for the significant hazards?	Is this step a CCP? (Yes/No)
(Fermentation)	(B) Pathogens (e.g., <i>Staphylococcus aureus</i> , viruses)		the length of time that product is out of temperature control.	be followed. Control measures: SOPs	
Testing	(B) Yeast and mold (mycotoxin) (B) Pathogens (e.g., <i>Staphylococcus aureus</i>)	Yes	Finished product pH of 4.5 or less after incubating for a specified time controls the pathogen growth and toxin formation.	Finished product pH of 4.5 or less after incubating for a maximum of six hours.	Yes CCP 1
Cooling	Not applicable	Yes	At pH of 4.5 or less, pathogens or yeast and mold should not be present in significant amounts.	Control measures: SOP	No
Storage	Not applicable	No	All finished product will be kept refrigerated until sold or served.	Control measures: SOP	No
Sale or Service	(B) Pathogens (e.g., <i>Staphylococcus aureus</i> , viruses)	No	Introduction of pathogens if products are improperly handled.	Control measures: SOP	No
Discard	None	Yes	Not applicable.	Not applicable	No

HACCP plan form

Complete the chart below. Identify each CCP and describe: the critical limit; method and frequency for monitoring and controlling the CCP; method and frequency for person in charge (PIC) to verify that food employees are following standard operating procedures (SOPs) and monitoring CCPs; corrective action when critical limits are not met; and how records are maintained.

Critical control point (CCP)	Significant hazard (s)	Critical limits for each hazard	Monitoring: What	Monitoring: How	Monitoring: Frequency	Monitoring: Who	Corrective action(s)	Records	Verification
CCP 1 Testing	(B) Yeast and mold (mycotoxin) (B) Pathogens (e.g., <i>Staphylococcus aureus</i>)	pH of 4.5 or less after incubating for a maximum of six hours	pH of finished product	Use a pH meter.	Each batch, within six hours of inoculation	Chef or other designated employee	<p>If product does not meet critical limit within four hours, continue to allow the batch to incubate (ferment), then retest.</p> <p>Discard the entire batch if finished product pH critical limit is not met within six hours.</p> <p>Identify and retrain employee(s) on how to ensure that critical limits are met.</p>	<p>pH Testing Log</p> <p>Maintain all records for at least six months.</p>	<p>Chef, supervisor or person in charge (PIC) must review all records before product is offered for sale.</p> <p>Chef and manager must conduct at least a yearly review of HACCP plan and process.</p> <p>All employees must use and maintain equipment per manufacturer's specifications.</p>

Standard operating procedures (SOPs)

Include SOPs that describe how you conduct procedures specific to this HACCP activity. SOPs necessary for your HSCCP activity may include: maintenance of specialized equipment (e.g., pH meter calibration, cleaning and sanitization of clean-in-place (CIP) equipment) and employee training (e.g., monitoring, corrective action and record-keeping procedures; proper formulation of food additives).

Standard operating procedures (SOPs)

SOP for CCP 1 Testing

Significant hazards

If improperly acidified, the following biological hazards could cause illness:

- Staphylococcus aureus
- Yeast
- Mold

Critical limits for each hazard

The finished product must have a pH of 4.5 or less after incubating for a maximum of six hours.

Monitoring

Chef or other designated employee must test each batch by following the steps below for calibrating pH meter, preparing product, and testing pH of finished product.

Calibrate pH meter:

1. Prior to testing, the electrodes, buffer solutions, product and distilled water need to be at room temperature.
2. Calibrate pH meter immediately before testing product, or when readings are in doubt.
3. Calibrate pH meter according to manufacturer's instructions.
4. Only use buffer solutions that have not exceeded the labeled expiration dates.
5. Use pH 4.0 and 7.0 buffer solutions
6. If the pH meter does not read the buffers correctly, recalibrate the pH meter according to the manufacturer's instructions or replace the meter.
7. Record pH meter calibration of the pH Testing Log.

Prepare product for testing:

1. Stir entire batch of yogurt prior to sampling for testing.
2. Place ½ cup of the stirred yogurt product in a cup.

Test product pH:

1. Use the pH meter to test the pH of the yogurt. Do not use pH papers or strips.
2. Record product pH on the pH Testing Log.

Standard operating procedures (SOPs)

Corrective action (s)

If product does not meet critical limit within four hours:

- Continue to allow the batch to incubate (ferment) for up to two additional hours, then retest.
- Discard the entire batch if finished product pH critical limit is not met within six hours.
- Identify where deviation in the procedure occurred.
- Retrain employee(s) as needed on how to ensure that critical limit is met.
- Record results and all corrective actions on the pH Testing Log.

Records

Record all required information on the pH Testing Log. Maintain all records for at least six months.

Verification

Chef, supervisor or person in charge (PIC) must verify that employees are monitoring and checking finished product pH by:

- Visually monitoring employees during their shift.
- Reviewing all records including pH Testing Log before product is offered for sale.
- Recording all pH meter calibrations and product pH testing results on the pH Testing Log.

Chef and manager must conduct a yearly review of process.

All food workers must use and maintain equipment per manufacturer's specifications.

Information for employees

A hazard analysis critical control point (HACCP) system is a preventive approach to food safety. It identifies food safety hazards in the food production process and designs measurements to reduce those hazards to a safe level. HACCP includes having a written plan that addresses identified critical control points (CCPs) where illness or injury is reasonable likely to occur in the absence of the hazard's control.

This HACCP plan:

- Is for our food establishment at the specified address only. It is our plan and does not apply to any other food establishment located in Minnesota. It is not transferable to another location.
- Is only for the food activities listed in the plan. If we intend to conduct additional activities or make additional foods that require HACCP, we must submit a new or revised HACCP plan and have it approved prior to implementation.
- Must be maintained on site and be followed as written.
- Includes specific records that we must complete and maintain for the minimum time frames as indicated in the plan.
- Is not a stand-alone food safety program. We still need to comply with all applicable requirements of the Minnesota food code, as well as other applicable federal, state, county, and city regulations or requirements.

Prerequisite programs

Describe facility-wide considerations implemented in all phases of the food operation that allow you to have active managerial control over personal hygiene and cross-contamination. Include sanitation standard operating procedures (SSOPs) that address the following: how employees comply with [Minnesota Rules, part 4626.0225](#) relating to contamination from hands; minimizing cross-contamination; cleaning and sanitization procedures; restriction or exclusion of ill employees. Include a description of your training programs that ensure food safety in your operation.

Prerequisite programs

Employee and Supervisory HACCP Training Plan

All employees and managers involved with yogurt making operations will complete the HACCP training plan before supervising or conducting yogurt making operations and when corrective actions are required. HACCP training includes these topics:

- Identifying and controlling hazards associated with the yogurt process
- Equipment operation and maintenance
- Proper implementation of all SSOPs

Making yogurt

Only employees that are trained in the use of the equipment and fermentation process shall conduct yogurt making operations. Ensure that:

- Facilities in the area where yogurt operations are to be conducted are clean and sanitary and are in good physical condition. Yogurt making operations must only be conducted in the designated area.
- All equipment is operating properly and safely. Ensure that equipment involved in the yogurt process has been properly cleaned and sanitized according to regulation and food establishment policy.
- Employees are in compliance with employee practices in the Minnesota food code. This includes employee illness, hygiene, handwashing, clean clothing, etc.
- All milk and milk product ingredients are used or discarded before the package label use by date.
- Finished yogurt meets CCP critical limit of 4.5 or less after incubating for a maximum of six hours. Retest product pH if additional ingredients are added.
- If final product is to be packed, the finished yogurt is filled into containers. Label containers properly and indicate **sell by date no longer than 21 days from preparation date**.

Employee practices

Hands and fingernails are to be thoroughly washed for twenty seconds in a handwashing sink with soap and warm water. Dry with single-use towels. Handwashing is to be done at the following times:

- After using the toilet
- After coughing, sneezing, using a tissue, using tobacco, eating or drinking
- After handling soiled utensils or equipment

Prerequisite programs

- Immediately before engaging in food preparation activities
- During food preparation activities as necessary to remove soil and prevent cross-contamination
- When switching between working with raw and ready-to-eat foods
- Other times as needed to maintain good sanitation

Fingernails must be trimmed, filed, and free of nail polish. Artificial nails are prohibited.

Eating and drinking is prohibited in areas where contamination of exposed food, utensils, etc. can occur.

Effective hair restraints must be worn in processing areas.

Smoking and other uses of tobacco are prohibited in processing areas.

Clean outer clothing must be worn and changed as often as necessary throughout the day if soiled.

No jewelry (except a wedding band or other plain ring) is allowed when handling food.

Food employees must report to a person in charge (PIC) when they have a symptom caused by illness, infection or other source that is associated with diarrhea, vomiting or other acute gastrointestinal illness; or jaundice. The PIC must impose the proper restrictions and exclusions according to [Minnesota Rules, part 4626.0040](#) through [Minnesota Rules, part 4626.0060](#) and record on an Employee Illness Log.

Cleaning and sanitizing of food-contact surfaces

Properly cleaned and sanitized food-contact surfaces are critical to ensuring a safe, sanitary operation. Use of approved cleaners and sanitizers will reduce levels of pathogenic organisms to prevent cross-contamination of the product. Detergent cleaners suspend and help remove various food soils. Chemical sanitizers (chlorine, quarternary ammonia, etc.) reduce the numbers of pathogens and other microorganisms to insignificant levels.

Clean and sanitize food-contact surfaces by:

1. **Washing:** Use warm water and soap or detergent to thoroughly wash all equipment and utensils after each use. Scrub all surfaces to make sure food scraps and grease are removed.
2. **Rinsing:** Use clean, warm water to rinse equipment and utensils after washing. Make sure to remove all remaining soap or detergent.
3. **Testing sanitizer solution:** Ensure that an appropriate chemical test kit is available and routinely used to ensure that accurate concentrations of the sanitizer solutions are being used.
4. **Sanitizing:** Mix sanitizing solution according to label instructions. Use the chemical test kit to make sure the proper amount of sanitizer is used. (Re-test the solution if it becomes dirty.) Soak clean equipment and utensils in the sanitizer solution according to label instructions. Exposure time is important to ensure effectiveness of the chemical.
5. **Air drying:** Allow all cleaned and sanitized equipment and utensils to air dry before stacking or storing. Don't use towels.

When automatic dishwasher is used, follow manufacturer's instructions for all washing, rinsing, and sanitizing.

Record-keeping

Attach all blank record-keeping forms your employees will use for the processes covered in this HACCP plan. You must have procedures to monitor all SOPs (e.g., daily thermometer accuracy log; pH meter calibration log). You must have procedures to monitor all CCPs (e.g., cooking, cooling, storage and corrective action log; product pH testing and corrective action log). Include verification for each record.

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