

SAMPLE DOCUMENTATION  
PRODUCTION OF DAIRY PRODUCTS IN FOOD SERVICE  
ESTABLISHMENTS



Ministry of  
Health

## Production of Kefir in Food Service Establishment

**Kefir** is a fermented, slightly bubbly milk drink. It is tangier than yogurt but sweeter than buttermilk. The fermentation uses kefir grains. Kefir grains are a combination of bacteria as well as some yeasts, referred to as a SCOBY (Symbiotic Combination of Bacteria and Yeast). This results in a product with natural carbonation. This property makes it popular for use in smoothies.



### STANDARD RECIPE

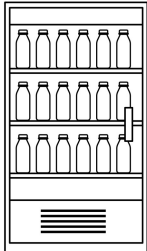
- 10 Litres of pasteurized milk
- 25 mls kefir grains (about 2 tablespoons)

Follow manufacturers instructions for preparation of kefir grains. **Kefir made in food service establishments must use fresh kefir grains every batch.** The traditional practice of re-culturing kefir grains is not permitted.

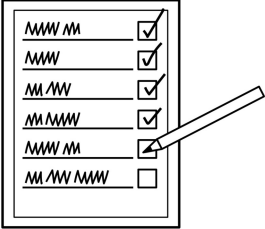
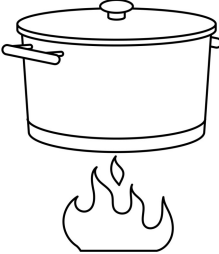
### Equipment List

Measuring cups	Long handled metal spoon	Milk Boiler	Thermometer
Scale	Incubation area (away from drafts)	Strainer/Filter	

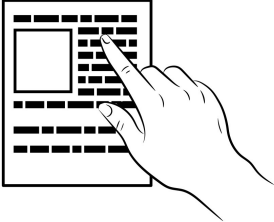
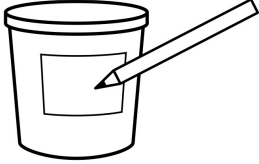
## PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
1	Purchase and refrigerate milk  	<u><b>Biological</b></u> Pathogen contamination due to using product that is past best before date. Pathogen growth due to time/temperature abuse.  Pathogen contamination due to condensation falling onto/into uncovered product.	<ul style="list-style-type: none"> <li>Purchase and use only pasteurized dairy ingredients from approved sources.</li> <li>Keep pasteurized dairy ingredients in original commercial packaging, as purchased, until use.</li> <li>Store at 4°C or colder.</li> </ul> <p style="text-align: center;"><b>Do not use products where the best before date has expired.</b></p>

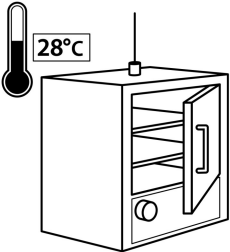
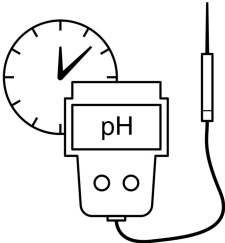
## PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
2	Preoperational Checks  	<p><b><u>Biological</u></b> Pathogen contamination due to incomplete sanitation procedures.</p> <p><b><u>Chemical</u></b> Cross contamination due to improper separation of activities. Contamination with non-food chemicals due to residual cleaners or sanitizers. Contamination with non-food chemicals due to mishandling of sanitizer spray bottles during use or filling.</p>	<ul style="list-style-type: none"> <li>• Inspect, clean and sanitize designated work area.</li> <li>• Inspect equipment, utensils, and processing areas (clean and sanitized).</li> <li>• Use written recipe each time you make the product to ensure consistency of measurements and that all steps in the production process are followed.</li> <li>• Label the sanitizer spray bottles to indicate the content (non-food chemical)</li> </ul>
3	Heat milk to inoculation temperature  	<p><b><u>Biological</u></b> Pathogen growth due to time/temperature abuse (too slow heating rate, incorrectly calibrated thermometer). Pathogen contamination due to unsanitary equipment. Pathogen contamination due to poor hygiene and improper handling by employees.</p> <p><b><u>Chemical</u></b> Contamination with non-food chemicals due to residual cleaners or sanitizers.</p> <p><b><u>Allergens</u></b> Contamination by allergens due to improper separation of activities.</p>	<ul style="list-style-type: none"> <li>• Heat the milk slowly in a water bath over low heat until it reached 30°C. Turn off the heat.</li> <li>• Milk must reach temperature within 1 hour.</li> </ul>

## PROCESS BASED FOOD SAFETY PLAN

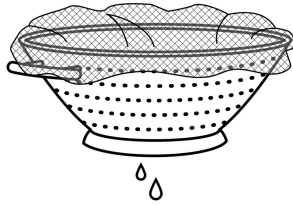
Step #	Process Step	Potential Hazards	Instructions and Outcomes
4	Prepare Kefir grains  	<p><b><u>Biological</u></b>            Pathogen contamination due to unsanitary equipment.            Pathogen growth due to failure of culture/culture that is past code/inactive cultures.            Pathogen contamination due to mixing culture with contaminated dairy ingredient.</p> <p><b><u>Chemical</u></b>            Contamination with non-food chemicals due to residual cleaners or sanitizers.</p>	<ul style="list-style-type: none"> <li>• Use only approved commercial kefir grains.</li> <li>• Check that culture is still within the expiry date.</li> <li>• Follow the manufacturer’s instructions for usage rate and incubation requirements.</li> <li>• Sprinkle the starter over the surface of the milk and let stand for 5 minutes.</li> <li>• Whisk the milk in up and down motion to combine.</li> </ul> <p style="text-align: center;"><b>Re-culturing kefir grains is not permitted. Always prepare fresh kefir grains.</b></p>
5	Transfer to sanitized container  	<p><b><u>Biological</u></b>            Pathogen growth due to time/temperature abuse.             Pathogen contamination due to use of non food grade, damaged or unclean containers (new or used).            Pathogen contamination due to poor hygiene and improper handling by employees.</p> <p><b><u>Chemical</u></b>            Contamination with non-food chemicals due to use of non food grade packaging material</p> <p><b><u>Allergens</u></b>            Allergen cross contamination due to unsanitary equipment.</p> <p><b><u>Physical</u></b>            Hazardous extraneous material contamination due to dirt and debris falling into uncovered product.</p>	<ul style="list-style-type: none"> <li>• Hygienically transfer inoculated milk to food grade containers with lids.</li> <li>• If re-using containers, ensure they are cleaned, sanitized, and approved for multi-use.</li> </ul>

## PROCESS BASED FOOD SAFETY PLAN

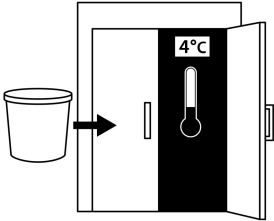
Step #	Process Step	Potential Hazards	Instructions and Outcomes
6	Incubate/Ferment	<p><u>Biological</u></p> <p>Incomplete acidity development due to improper incubation procedure.</p> <p>Pathogen growth due to improper incubation temperature.</p> <p>Pathogen contamination due to uncovered or unsealed containers (improper packaging).</p> <p><u>Physical</u></p> <p>Hazardous extraneous material contamination due to uncovered or unsealed containers (improper packaging).</p>	<ul style="list-style-type: none"> <li>• Allow the mixture to sit for 12 to 24 hours at room temperature.</li> <li>• The length of time will determine the acidity of the finished product. A longer fermentation will increase the sourness.</li> <li>• A thicker product can be made by incubating in a refrigerator for up to 5 days before using.</li> </ul>
			
7	Reach end point pH	<p><u>Biological</u></p> <p>Pathogen growth due to failure of culture/culture that is past code/inactive cultures.</p> <p>Incomplete acidity development due to improper incubation procedure.</p> <p>Pathogen growth due to time/temperature abuse.</p> <p>Pathogen contamination due to improper employee handling practices.</p> <p>Pathogen contamination due to unsanitary equipment.</p> <p><u>Allergens</u></p> <p>Allergen cross contamination due to improper employee handling practices.</p>	<p><b>CRITICAL CONTROL POINT (CCP1B)</b></p> <ul style="list-style-type: none"> <li>• <b>Endpoint pH 4.6 or lower within 2 hours of the expected incubation time. The final product pH of Kefir is usually between 3.7 and 4.0 to achieve the desired flavour profile.</b></li> <li>• Check the product pH at the expected completion time for the fermentation stage</li> </ul> <p><b>Important: The normal fermentation time is specific to your process and must be established during your product development.</b></p> <ul style="list-style-type: none"> <li>• If the target pH has not been reached, continue incubating and recheck the pH after 1 hour.</li> </ul> <p><b>Corrective Action:</b></p> <ul style="list-style-type: none"> <li>• If the end point pH (pH 4.5 or lower) has not been reached after 2 hours past the expected incubation time, there is a problem with the batch and it must be discarded.</li> </ul> <p style="text-align: center;"><b>Wash and sanitize all utensils, containers, and equipment before re-using them. Document on batch sheet or production logbook.</b></p>
			

## PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
8	Strain/Filter	<p><b><u>Biological</u></b> Pathogen growth due to time/temperature abuse.</p> <p>Pathogen contamination due to unsanitary equipment.</p> <p>Pathogen contamination due to improper employee hygiene practices.</p> <p><b><u>Chemical</u></b> Contamination with non-food chemicals due to incomplete sanitation procedures.</p>	<ul style="list-style-type: none"> <li>• When the kefir is ready, the mixture will have thickened and some whey may have separated.</li> <li>• The kefir grains will float to the surface.</li> <li>• Gently stir the mixture with a wooden spoon.</li> <li>• Strain the kefir through a sanitized fine sieve, stirring the grains gently (do not press them).</li> </ul>
9	Package	<p><b><u>Biological</u></b> Pathogen growth due to time/temperature abuse due to taking too long to complete step</p> <p>Pathogen cross-contamination due to poor hygiene and improper handling by employees.</p> <p>Pathogen contamination due to condensation falling onto/into uncovered product.</p> <p>Pathogen contamination due to improperly stored packaging material.</p> <p><b><u>Allergens</u></b> Allergen cross contamination due to improperly stored packaging material.</p> <p><b><u>Physical</u></b> Hazardous extraneous material contamination due to damaged or open packaging.</p>	<ul style="list-style-type: none"> <li>• Sanitize work surface.</li> <li>• Hygienically transfer kefir to food grade containers with lids.</li> <li>• If re-using containers, ensure they are cleaned, sanitized and approved for multi-use.</li> </ul>



## PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
10	Store in refrigerator 	<b>Biological</b> Pathogen growth due to improper storage conditions (cooler malfunction). Pathogen growth due to poor inventory control (use of FIFO) Pathogen growth due to time/temperature abuse.	<ul style="list-style-type: none"><li>• Date product with 3 day use by date.</li><li>• Store at 4°C or colder.</li><li>• Discard product after 3 days.</li></ul>

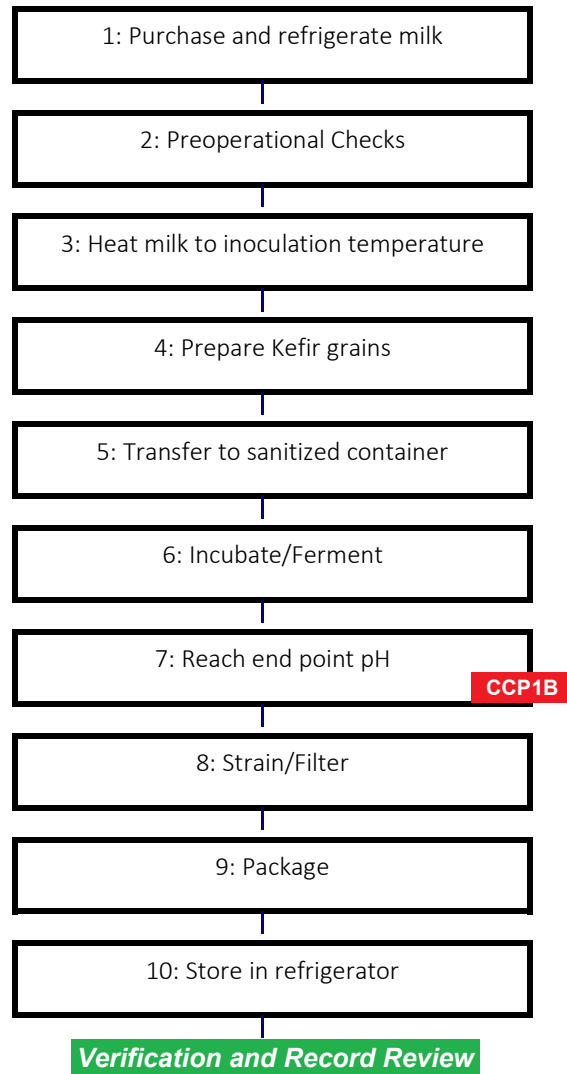
## Product Description Form (Foodservice)

Product Category	Cultured Products
1. What is your product name and weight/volume?	Kefir
2. What type of product is it (e.g. raw, ready-to-eat, ready-to-cook, or ready for further processing)	Ready to Eat (RTE), used internally as an ingredient.
3. What are your product's important food safety characteristics (e.g. acidity, water activity, salinity, etc.)?	Pasteurized, cultured, stored refrigerated, pH $\leq$ 4.6, slightly alcoholic and low level of natural carbonation.
4. What allergens does your product contain?	Milk See list of flavouring ingredients used in kefir for potential allergens.
5. What restricted ingredients (preservatives, additives, etc.) does your product contain, and in what amounts e.g. grams)	None
6. How do you store your product e.g. keep refrigerated, keep frozen, keep dry) in your establishment and when you ship your product?	Store in lidded container in refrigerator.
7. What is the shelflife of your product under proper storage conditions?	3 days refrigerated (4°C).
8. Who will consume your product (e.g. the general public, the elderly, the immunocompromised, infants?)	Food Service customers.
9. How might the consumer mishandle your product and what safety measures will prevent this?	Mishandled in kitchen.
10. Where will the product be sold?	At own facility.
11. What information is on your product label?	Keep refrigerated, production date (lot code).



# Kefir

## Process Flow Table



## Critical Control Points Table: Kefir

1. Identifying Hazards	2. Identifying Critical Control Points (CCP)	3. Establishing Critical Limits:	4. Establishing Monitoring Procedures (who, what, how and when)	5. Establishing Corrective Actions:	6. Establishing Verification Procedures (who, what, how and when)	7. Keeping Records
Incomplete acidity development due to improper incubation procedures	<b>CCP1B</b> Reach end point pH	Endpoint pH $\leq$ 4.6 within 2 hours of the expected incubation time	<ol style="list-style-type: none"> <li>1. Production worker checks pH with clean and sanitized calibrated pH meter.</li> <li>2. Start pH checks one hour before anticipated end point pH for product and repeat every hour until end of incubation period.</li> <li>3. Record on batch report.</li> </ol>	<p><b>When critical limits are not being met for one or more sample.</b></p> <ol style="list-style-type: none"> <li>1. If target pH has not been achieved, continue for one more hour.</li> <li>2. Discard the batch if end point pH is not reached after this additional incubation time. <b>The batch is contaminated and should not be used.</b></li> <li>3. Record as corrective action on batch report.</li> <li>4. <b>Clean and sanitize utensils, containers and equipment before reusing.</b></li> </ol>	<ol style="list-style-type: none"> <li>1. Operator will establish fermentation time for Kefir process.</li> <li>2. Operator reviews and signs batch reports at end of production day to ensure that it has been properly completed.</li> <li>3. Once per week, the Operator ensures that the pH checks follow the procedure (observes production worker in their task).</li> <li>4. If a non-conformance is found during the verification procedure, immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence.</li> <li>5. Record all observations on the batch report, including the date, the time and initials.</li> </ol>	Kefir Batch Report pH Meter Calibration Record

Note: CCPs are points in the your process where controls are essential to preventing hazards or reducing them to acceptable levels. You may not be able to prevent or reduce the risk of the hazard at any later step. A CCP is measureable. Some examples of measureable CCPS in dairy processing are the time and temperature of pasteurization, the pH of a fermented dairy product and the water activity of a dried product such as skim milk powder. Foodservice establishments may include additional preparation steps as CCPs particularly when there is no cook step in the operation. These additional CCPs control the hazards associated with crosscontamination due to sanitation and personnel.

## Kefir Batch Report

Date Made: 2022-Mar-03  
Best Before Date: 2022-Mar-06 Lot Code: 22062  
Operator: Joe

Preoperational checks done Yes, JG

### Ingredients Used

Ingredient	Amount	Code/Lot	Supplier
Homo Milk (3.25%BF)	10 Litre	MR15	Saputo
Kefir Grains	2 tlb	L20123A	Danisco

Process Step	Date	Time Start	Time End	Temp ( °C )	pH
Heat Milk to inoculation temperature	Mar-03	8:15	8:30	30	6.3
Record Temperature of incubator		9:00		30	5.2
		13:00		30	
		16:00		30	
		11:45		30	
CCP1B Monitor pH	Mar-04		7:30	30	3.9
Final temperature in cooler			9:00	4	3.7

Yield Number of 2 L jugs 5

Observed Deviations and Corrective Actions

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Verification by:  
Mary Smith

Date of Record Review:  
2022-Mar-05