

**SAMPLE DOCUMENTATION  
PRODUCTION OF DAIRY PRODUCTS IN FOOD SERVICE  
ESTABLISHMENTS**

**Khoya**



Ministry of Health

## Production of Khoya in Food Service Establishment

**Khoya** is a dried evaporated milk solids commonly used in sweet Indian desserts. It is made by heating milk in an open pan until all moisture evaporates. Also known as mawa.



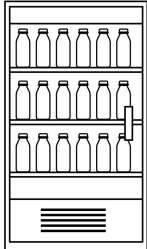
### STANDARD RECIPE

10 Litres of pasteurized milk, full fat 3.25% BF recommended.

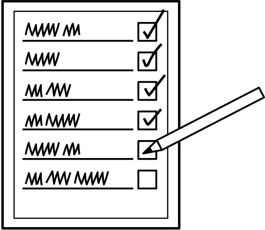

### Equipment List

Long handled metal spoon      Thick bottom saucepan (Kadhai)      Thermometer

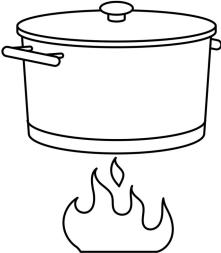
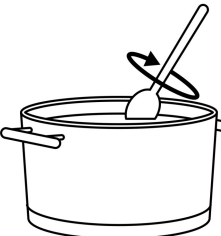
## PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
1	Purchase and refrigerate milk  	<p><b>Biological</b></p> <p>Pathogen contamination due to using product that is past best before date.</p> <p>Pathogen growth due to time/temperature abuse.</p> <p>Pathogen contamination due to condensation falling onto/into uncovered product.</p>	<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>

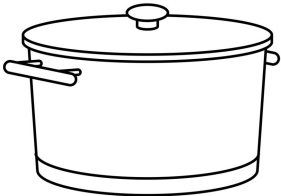
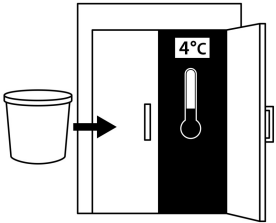
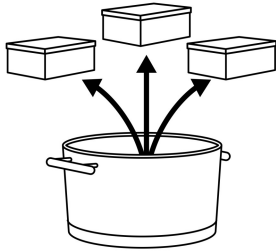
## PROCESS BASED FOOD SAFETY PLAN

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> Contamination with non-food chemicals due to residual cleaners or sanitizers.</p> <p><b><u>Allergens</u></b> Allergen cross contamination due to improper separation of activities.</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	Stage Ingredients  	<p><b><u>Biological</u></b> Pathogen growth due to time/temperature abuse.</p> <p>Pathogen contamination due to unsanitary equipment.</p> <p>Pathogen cross-contamination due to improper employee handling practices.</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> Allergen cross contamination due to improper separation of activities.</p>	<ul style="list-style-type: none"> <li>• Khoya is made by directly heating full fat milk. The milk concentrates by evaporation.</li> <li>• The final texture of Khoya will vary from a hard solid to granular depending on type of milk used (fat content) and degree of evaporation. Higher fat milk whole milk provides best texture. It is preferable to use non-homogenized milk.</li> <li>• Slow gentle agitation and good heating rate is key success factor for safe khoya with good texture.</li> </ul>

## PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
4	Heat Milk  	<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>• Pour milk into a thick bottomed pan and start heating process. A Kadhai is traditionally used for this.</li> <li>• Bring milk to a gentle boil on low to medium heat. A gentle boil will have bubbles of milk around the edge of the pot.</li> <li>• Stir continually to ensure the bottom doesn't burn (water bath or double boiler will not work for this product. They do not provide sufficient heat)</li> <li>• Scrape the milk solids from the sides of the pan using a spatula and stir into milk in the pan. Heat milk in a stainless steel saucepan.</li> <li>• Stir continuously to control frothing. This heat treatment will denature the milk proteins and evaporate water.</li> <li>• As most of the water is evaporated, the rate of heating is controlled and maintained at about 80°C to prevent the charring of Solids not Fat (SNF) so as not to develop bitter flavours and/or a brown colour.</li> </ul>
5	Simmer and stir  	<p><b><u>Biological</u></b> Pathogen growth due to time/temperature abuse (too slow heating rate, incorrectly calibrated thermometer). Pathogen growth due to poor hygiene and improper handling by employees. Pathogen contamination due to unsanitary equipment.</p>	<ul style="list-style-type: none"> <li>• Continue to simmer milk over low heat. The milk will continue to reduce and thicken.</li> <li>• Stir constantly to avoid burning. Towards the end of the heating process there will be bubbles bursting in the reduced milk. The bubbles are due to moisture in the milk.</li> <li>• At this stage the milk solids begin to settle at the bottom</li> </ul> <p><b>Check temperature with clean and sanitized probe thermometer.</b></p>

## PROCESS BASED FOOD SAFETY PLAN

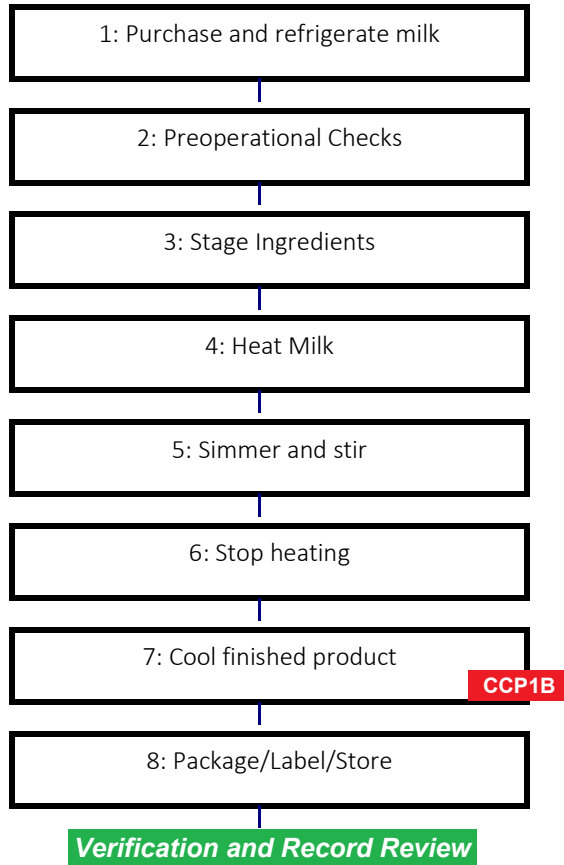
Step #	Process Step	Potential Hazards	Instructions and Outcomes
6	Stop heating	<p><u>Biological</u></p> <p>None identified due to none identified</p>	<ul style="list-style-type: none"> <li>Remove from heat when there are no more bubbles in the reduced milk. This process may take 1 to 1.5 hours.</li> <li>Transfer into tray, increase surface area.</li> </ul>
			
7	Cool finished product	<p><u>Biological</u></p> <p>Pathogen contamination due to poor hygiene and improper handling by employees.</p> <p>Pathogen contamination due to unsanitary equipment.</p> <p>Pathogen growth due to time/temperature abuse (too slow cooling rate, incorrectly calibrated thermometer).</p> <p><u>Chemical</u></p> <p>Contamination with non-food chemicals due to residual cleaners or sanitizers.</p>	<p><b>Critical Control Point (CCP1B)</b></p> <ul style="list-style-type: none"> <li>Transfer dish to refrigerator.</li> <li>Cover</li> <li>Ensure proper cooling rate: Cool down to 60°C within 2 hours, and from 20°C to 4°C within 4 hours. Total cooling time not to exceed 6 hours.</li> </ul>
			
8	Package/Label/Store	<p><u>Biological</u></p> <p>Pathogen growth due to improper storage conditions (cooler malfunction).</p> <p>Pathogen growth due to poor inventory control (use of FIFO for frozen paneer on hand).</p> <p>Pathogen growth due to time/temperature abuse.</p>	<ul style="list-style-type: none"> <li>Sanitize work surface.</li> <li>Hygienically transfer cool khoya to food grade containers with lids. Product will be very thick. Use a sanitized spatuala for transfer.</li> <li>If re-using containers, ensure they are cleaned, sanitized and approved for multi-use.</li> <li>Khoya can be stored at ambient room temperature for 2-3 days or held refrigerated for up to 7 days.</li> <li>Khoya can also be stored frozen (-18 °C) for one month.and thawed in refrigerator.</li> </ul>
			

## Product Description Form (Foodservice)

Product Category	Evaporation
1. What is your product name and weight/volume?	Khoya
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), ingredient in meal preparation.
3. What are your product's important food safety characteristics (e.g. acidity, water activity, salinity, etc.)?	Reduced water activity.
4. What allergens does your product contain?	Milk
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?	Ambient: 2-3 days, Refrigerated: 7 days Frozen: One month
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?	Production date (lot code).

# Khoya

## Process Flow Table



## Critical Control Points Table: Khoya

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
Pathogen growth due to improper cooling procedures	<p><b>CCP1B</b></p> <p>Cool finished product</p>	Cool down to 20 °C within 2 hours and from 20 to 4 °C within 4 hours. Total cooling time not to exceed 6 hours.	<ol style="list-style-type: none"> <li>1. Production worker checks temperature with clean and sanitized probe thermometer.</li> <li>2. Check temperature every hour until 4 °C is reached.</li> <li>3. Record on batch report</li> </ol>	<p><b>When critical limits are not being met for one or more product samples.</b></p> <ol style="list-style-type: none"> <li>1. Report slow cooling to Operator. Check cooler and determine if maintenance is required.</li> <li>2. Place product on hold. Discard khoya if time limit has not been met.</li> <li>3. Immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. Record all non-conformances and corrective actions on batch report.</li> </ol>	<ol style="list-style-type: none"> <li>1. Operator reviews and signs batch reports at end of production day to ensure that it has been properly completed.</li> <li>2. Once per week, the Operator ensures that the temperature checks follow the procedure (observes production worker in their task).</li> <li>3. Operator reviews and signs cooler temperature once per week.</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. Record all observations on the batch report, including the date, the time and initials.</li> </ol>	Khoya Batch Report Cooler Temperature Log Thermometer Calibration Log

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.



## Khoya Batch Report

Date Made: 4/28/2022  
 Best Before Date: 22 MA 1 Lot Code: 22118  
 Operator: Joe

Preoperational checks done Yes, JG

### Ingredients Used

Ingredient	Amount	Code/Lot	Supplier
Full Fat Milk (3.25% BF)	10 Litre	MA 12	Saputo

Process Step	Time Start	Temp ( °C )	Comments
Heat Milk	8:00	70	
	8:10	82	
	8:30	90	
	9:15	85	volume reduced by half.
	9:30	83	
<b>CCP1B</b> Final temperature in cooler (at 24 hours)	8:00	4	

Number of portions (sealed and dated) 10

Observed Deviations and Corrective Actions  
 \_\_\_\_\_  
 \_\_\_\_\_

Date of Record Review: 4/28/2022 Verification by: Al#P~u#t