SAMPLE DOCUMENTATION

PRODUCTION OF DAIRY PRODUCTS IN FOOD SERVICE ESTABLISHMENTS

BRITISH COLUMBIA | Ministry of Health

Updated: September 2022

Production of Ghee in Food Service Establishment

Ghee is a clarified butter that originated in ancient India. Unsalted butter is heated to remove water and filtered to separate the milk solids. The result is a product that is almost 100% BF. Ghee (also called desi or asli ghee) is used in Asian and Middle Eastern cuisine. It contributes a nutty flavour and due to its high smoke point it can be heated to a high temperature without burning.

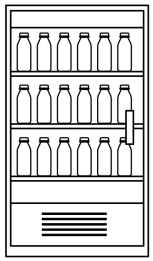
STANDARD RECIPE

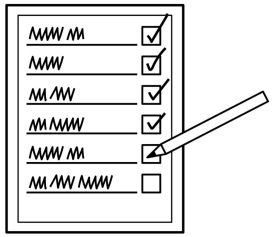
Unsalted butter

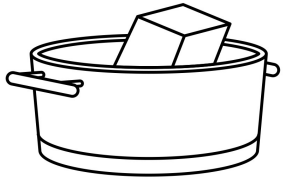
Equipment List

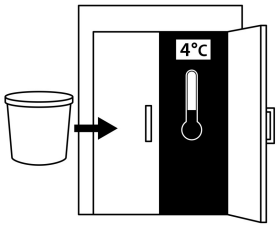
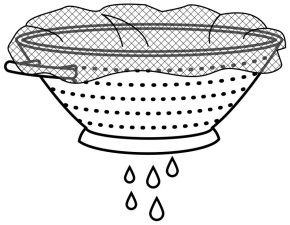
Long handled metal spoon	Kettle/Pot	Colander	Cheese cloth
Thermometer			

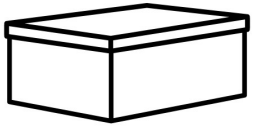
PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
1	Purchase and refrigerate butter 	**Biological** Product deterioration and bacterial growth due to poor inventory control (use of FIFO) Pathogen growth due to time/temperature abuse. Pathogen contamination due to condensation falling onto/into uncovered product.	• Purchase and use unsalted butter from approved sources. • Keep butter in original commercial packaging, as purchased, until use. • Store at 4°C or colder. Frozen storage is recommended for unsalted butter because it is more susceptible to rancidity than salted butter.

PROCESS BASED FOOD SAFETY PLAN			
Step #	**Process Step**	**Potential Hazards**	**Instructions and Outcomes**
2	Preoperational Checks 	**Biological** Pathogen contamination due to incomplete sanitation procedures. **Chemical** 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 bottlers during use or filling.	• Inspect, clean and sanitize designated work area. • Inspect equipment, utensils, and processing areas (clean and sanitized). • Use written recipe each time you make the product to ensure consistency of measurements and that all steps in the production process are followed. • Label the sanitizer spray bottles to indicate the content (non-food chemical)
3	Stage Ingredients 	**Biological** Pathogen growth due to time/temperature abuse. Pathogen contamination due to unsanitary equipment. Pathogen cross-contamination due to improper employee handling practices. **Chemical** Contamination with non-food chemicals due to residual cleaners or sanitizers.	• Use unsalted butter. • Ghee is made by applying heat to butter at controlled temperatures.

PROCESS BASED FOOD SAFETY PLAN			
Step #	**Process Step**	**Potential Hazards**	**Instructions and Outcomes**
4	Heat Butter 	**Biological** Pathogen growth due to time/temperature abuse (too slow heating rate, incorrectly calibrated thermometer). **Chemical** Contamination with non-food chemicals due to residual cleaners or sanitizers. Contamination with non-food chemicals due to incomplete sanitation procedures. **Allergens** Contamination by allergens due to improper separation of activities. **Physical** Hazardous extraneous material contamination due to poor hygiene and improper handling by employees.	• Melt butter in a stainless steel saucepan. Gradually increase the temperature of butter in open pan to about the boiling point of water. Use a medium heat setting. Use a shallow pan that provides a good surface area for evaporation of liquid. • Stir continuously to control frothing. This heat treatment will denature the milk proteins and evaporate water. • As most of the water is evaporated, the rate of heating is controlled and maintained at about 103°C to prevent the charring of SNF (solids not fat) so as not to develop bitter flavours and/or a brown colour. • Finally, the temperature is raised to between 105°C and 118°C with constant agitation to remove the water bound to the Solids Not Fat (SNF) and to develop the characteristic flavour.
5	Stir 	**Biological** Pathogen contamination due to unsanitary equipment. Pathogen contamination due to poor hygiene and improper handling by employees. **Chemical** Contamination with non-food chemicals due to residual cleaners or sanitizers. **Allergens** Contamination by allergens due to improper separation of activities.	• Stir constantly to avoid burning, use of a water bath or double boiler is recommended. • At this stage the milk solids begin to settle at the bottom • Check temperature with clean and sanitized probe thermometer.

PROCESS BASED FOOD SAFETY PLAN			
Step #	**Process Step**	**Potential Hazards**	**Instructions and Outcomes**
6	Cool  	**Biological** Pathogen contamination due to poor hygiene and improper handling by employees. Pathogen contamination due to unsanitary equipment. Pathogen growth due to time/temperature abuse (too slow cooling rate, incorrectly calibratred thermometer). **Chemical** Contamination with non-food chemicals due to residual cleaners or sanitizers.	• Cool molten butter slightly before filtering to prevent potential of burn injury.
7	Filter/Separate 	**Biological** Pathogen growth due to time/temperature abuse (process step not done in cooler). Pathogen contamination due to unsanitary equipment. Pathogen contamination due to use of non food grade or unapproved chemical. Pathogen contamination due to improper employee hygiene practices.	• Pour the ghee through a clean dry strainer/ filter to separate the milk solids from the ghee. • A paper towel or cheese cloth lined metal colander/sieve is sufficient for this task.

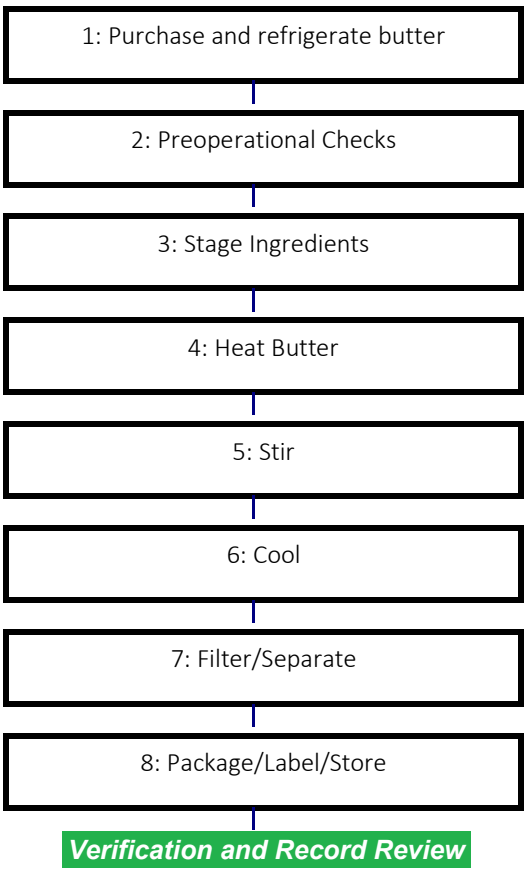
PROCESS BASED FOOD SAFETY PLAN			
Step #	**Process Step**	**Potential Hazards**	**Instructions and Outcomes**
8	Package/Label/Store 	**Biological** Pathogen growth due to time/temperature abuse. Pathogen growth due to poor inventory control (use of FIFO for frozen paneer on hand). Pathogen growth due to improper storage conditions (cooler malfunction).	• Sanitize work surface. • Hygienically transfer liquid ghee to food grade containers with lids. • If re-using containers, ensure they are cleaned, sanitized and approved for multi-use. • Store Ghee in refrigerator (4°C) for up to 1 year. It can be held at room temperature for 3 months. • It is important to store Ghee in an airtight container and keep away from direct sunlight that may cause moisture to build up in jar. Moisture can cause deterioration of the Ghee's quality and reduce its shelflife. Ghee, like most types of oil, it will go rancid. This is evidenced by a strong unpleasant odour and it will likely loose its golden colour, become white and taste sour.

Product Description Form (Foodservice)

Product Category	Evaporation
1. What is your product name and weight/volume?	Ghee
2. What type of product is it (e.g. raw, ready-to-eat, ready-to-cook, or ready for further processing)	Ingredient in meal preparation.
3. What are your product's important food safety characteristics (e.g. acidity, water activity, salinity, etc.)?	Low water activity, refrigerated.
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 estblishment and when you ship your product?	Store in lidded container in refrigerator.
7. What is the shelflife of your product under proper storage conditions?	Product is best stored in refrigerator. It will last a year in refrigerator (4°C) or at room temperature for 3 months.
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).

Ghee

Process Flow Table



Critical Control Points Table: Ghee

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

CCPs are points in the process where controls are essential to preventing hazards or reducing them to acceptable levels. It may not be possible 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.

Ghee does not have a CCP in its production process but is susceptible to deterioration during its shelflife and may become rancid. Factors that contribute to the shelflife of Ghee include:

- Quality of raw ingredient (unsalted butter)
- Sanitation program
- Employee training in hygiene and food handaling
- Storage and handling of finished product (air tight containter, stored away from direct sunglight).

These preventive controls are key to food safety and quality for this product.

Ghee Production Log

Amount in Inventory (Kg) 2.2

Date	Batch No.	Pre-op checks done	Unsalted Butter Source	Butter Lot Code	# of 1 lb (454 g) packages of butter used	Kgs Used (packages used X .454)	Temp (°C) at end of heating step	Yield (Kg)	Amount used in food preparation	Amount in Inventory (Kg)	Operator:
3/23/2022	22	JG	Gay Lea Foods	0086 324	13	5.9	110	5.4	3.2	4.4	Joe
3/24/2022	23	JG	Foothills Creamery	4285 222	12	5.4	105	5.0	6	3.4	Joe
3/25/2022	24	JG	Meadowvale	3808 214	12	5.4	108	5.0	4.8	3.7	Joe
3/26/2022	X								2.2	1.5	Joe
3/27/2022	25	JG	Gay Lea Foods	0086 324	3	1.4	108	1.3	1.5	1.2	Joe
3/28/2022	26	JG	Gay Lea Foods	0086 340	5	2.3	107	2.1	1.5	1.8	Joe
3/29/2022	X								1.5	0.3	Joe
3/30/2022	28	JG	Gay Lea Foods	0086 340	8	3.6	108	3.3	1.5	2.1	Joe
3/31/2022	29	JG	Foothills Creamery	4285 222	8	3.6	108	3.3	1.5	4.0	Joe
4/1/2022	X								3	1.0	Joe
4/2/2022	30	JG	Gay Lea Foods	0086 341	5	2.3	105	2.1	1.5	1.6	Joe
4/3/2022	31	JG	Foothills Creamery	4285 222	6	2.7	108	2.5	1.5	2.6	Joe
4/4/2022	32	JG	Gay Lea Foods	0086 112	6	2.7	109	2.5	1.5	3.6	Joe
4/5/2022	33	JG	Meadowvale	3808 025	6	2.7	110	2.5	1.5	4.6	Joe

All butter used in Ghee is from federal establishments. The lot code provides establishment number and production date (julian date) and is useful for traceability code.

Amount in Inventory (Kg). 4.6
(Transfer to next batch record.)

Observed Deviations and Corrective Actions

Date of Record Review: Æî$«fiî˚˚ Verification by: A ⅋P~ ut