

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

Sherbet



Ministry of
Health

Important

Frozen Dairy Desserts: Ice cream, Gelato, Sherbet, Kulfi

The Guidelines for the Production of Dairy Foods in Food Service Establishments Website is intended for restaurant stakeholders (owners, managers, chefs and kitchen staff) and environmental health officers (EHOs) inspecting food premises where dairy products are being made for immediate consumption, according to the British Columbia Milk Industry Act, Dairy Plant Exception Regulation (BC Reg. 224/2019) https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/224_2019.

Section 2 of the DPER provides a specific exemption to a food premises that is using a freezing device to make frozen dairy products from a commercially prepared mix (e.g. ice cream mix, milkshake mix, “powdered” ice cream or soft serve mix). The addition of additional dairy ingredients is not contemplated in the intent of this section.

Minimal processing such as rehydrating the powdered mix (i.e. addition of water), and the addition of lower risk flavourings and inclusions added before or after freezing into molds or containers would be considered allowable under this section.

Food premises that do not meet the requirements of the DPER would be regulated as a dairy plant under the BC Milk Industry Act. Please visit the BC Centre For Disease Control web page for more information at:

<http://www.bccdc.ca/health-professionals/professional-resources/dairy-plant-licensing-inspection#Licensing>

Production of Sherbet in Food Service Establishment

Sherbet is a frozen dairy product that is an intermediate product between water ices and ice cream. It is made from sugar, water, fruit or fruit juice, acid, colour, stabilizer and a small amount of milk solids. It is a standardized food product in Canada and shall contain not more than 5% milk solids, including butter fat and not less than .35% acid expressed as lactic acid (B.08.063) . Sherbet has a higher sugar content than ice cream and may be made with a blend of sugar and corn syrup; total sweetener is usually around 30% which gives a lower melting point and a coarser texture. It is more refreshing because it is not as rich as ice cream and the high acidity provides a tart refreshing flavour.



STANDARD RECIPE

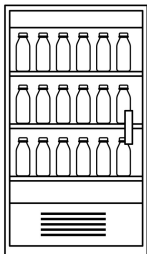
Sherbet is often formulated by adding 10% ice cream mix to the blend of fruit, sugar and acid. Milk solids also may be added in the form of condensed or fluid milk. This recipe uses ice cream mix. This recipe will make 7.5 Kg base. This base is blended 50:50 with fruit puree.

- 3.3 Kg Sugar
- 1.0 Kg Corn Syrup
- 3 Kg Ice Cream Mix
- 60 g Citric Acid
- 80 g Gelatin (or similar stabilizer).
- 7.5 Kg Fruit Puree

Equipment List

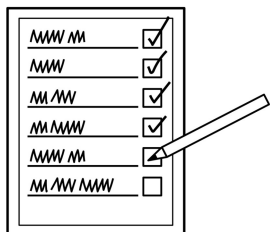
Kettle/Pot	Scale	Spoon	Whisk
Hand held mixer (robocoupe)	Ice cream maker/Freezing device	Thermometer	

PROCESS BASED FOOD SAFETY PLAN

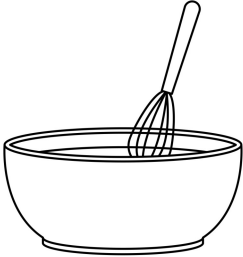
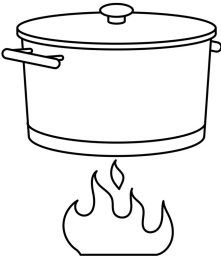
Step #	Process Step	Potential Hazards	Instructions and Outcomes
1	Purchase and refrigerate milk 	<u>Biological</u> Pathogen contamination due to using product that is past best before date. Pathogen growth due to time/temperature abuse. Pathogen contamination due to condensation falling onto/into uncovered product.	• Purchase and use only pasteurized dairy ingredients from approved sources. • Keep pasteurized dairy ingredients in original commercial packaging, as purchased, until use. • Store at 4°C or colder. Do not use products where the best before date has expired.

PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
2	Preoperational Checks	<u>Biological</u> Pathogen contamination due to incomplete sanitation procedures. <u>Chemical</u> 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	<u>Biological</u> Pathogen growth due to time/temperature abuse. Pathogen contamination due to unsanitary equipment. Pathogen cross-contamination due to improper employee handling practices. <u>Chemical</u> Contamination with non-food chemicals due to residual cleaners or sanitizers. <u>Allergens</u> Allergen cross contamination due to improper separation of activities.	• Sherbet is made from sugar, fruit puree, a stabilizer and a certain amount of milk solids. The milk solids may be whole or skim milk, condensed milk or a small amount of ice cream mix. • Ensure fruit and other flavour ingredients (e.g. herbs and spices) and other added ingredients are purchased from an approved supplier. • Flavour preparations may be a source of contamination (B,C,P). 1. Wash fruit and herbs 2. Use cooked fruit preparations 3. Spices may require roasting and crushing prior to use, e.g. green cardamon pods are crushed lightly using a mortar and pestle. Remove the husks (P) and crush the seeds to a fine powder. 4. Control nut allergen cross contamination between nut ingredients (e.g. cashews, pistachios and almonds.) Clean area and utensils following four step sanitation procedure between nut containing products. • Add using sanitized utensils

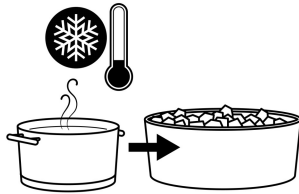


PROCESS BASED FOOD SAFETY PLAN

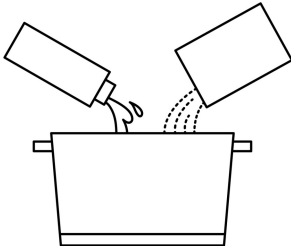
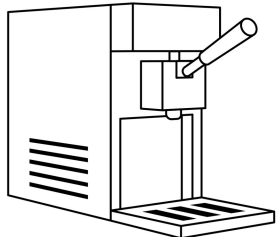
Step #	Process Step	Potential Hazards	Instructions and Outcomes
4	Prepare base sherbet mix 	<u>Biological</u> Pathogen contamination due to unsanitary equipment. Pathogen contamination due to poor hygiene and improper handling by employees. <u>Chemical</u> Contamination with non-food chemicals due to incomplete sanitation procedures. <u>Physical</u> Hazardous extraneous material contamination due to improper preparation of ingredients.	• Mix water and fruit. Adjust milk composition to achieve the desired texture (i.e., add milk powder). See appendix for instructions of how to standardize milk using Pearson Square Method. • Blend milk ingredients and begin the heating step. • Disperse stabilizer in sugars. Slowly add dry ingredients to warm milk and cream portion of mix using a whisk. Ensure all ingredients are incorporated and continue heating.
5	Cook 	<u>Biological</u> Pathogen growth due to time/temperature abuse (too slow heating rate, incorrectly calibrated thermometer). <u>Chemical</u> Contamination with non-food chemicals due to residual cleaners or sanitizers. Contamination with non-food chemicals due to incomplete sanitation procedures. <u>Allergens</u> Contamination by allergens due to improper separation of activities. <u>Physical</u> Hazardous extraneous material contamination due to poor hygiene and improper handling by employees.	• Heat sherbet mix to desired temperature as per your recipe (reach temperature within 1 hour). • Examples: heat to 82°C for 10 minutes. • Stir constantly to avoid burning the sherbet mix. Use of double boiler or water bath is recommended. • Check temperature with clean and sanitized probe thermometer.

PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
6	Cool/Age Base	<u>Biological</u> Pathogen contamination due to poor hygiene and improper handling by employees. Pathogen contamination due to unsanitary equipment. Pathogen growth due to improper storage conditions (cooler malfunction). Pathogen growth due to poor inventory control (use of FIFO for mixes on hand). <u>Physical</u> Hazardous extraneous material contamination due to dirt and debris falling into uncovered product.	CRITICAL CONTROL POINT (CCP1B) • Cool to 4°C. Use an ice bath or water in sink to remove initial heat. • Ensure proper cooling rate: Cool down to 20°C within 2 hours, and 20°C to 4°C within 4 hours. Total cooling time not to exceed 6 hours. • Allow mix to cool for at least two hours, preferably overnight. Aging the mix will allow the stabilizers to fully hydrate and the butterfat to solidify. This will improve the freezing properties and final product texture.



PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
7	Add fruit juices, flavour, colour and acid solution 	<u>Biological</u> Pathogen contamination due to poor hygiene and improper handling by employees. Pathogen contamination due to using flavouring ingredient that is contaminated (past code date, staged in a unhygienic manner). Pathogen contamination due to unsanitary equipment. <u>Allergens</u> Allergen cross contamination due to improper employee handling practices. Allergen cross contamination due to improper separation of activities. Contamination by allergens due to unsanitary equipment. <u>Physical</u> Hazardous extraneous material contamination due to poorly prepared (staged) flavouring ingredient (pits, nut shells, packaging)	• These ingredients can be a source of post pasteurization contamination and may affect the food safety and shelf life stability of the product. • Ensure flavours, fruit and other added ingredients are a low microbial risk: 1. Wash fruit 2. Use cooked fruit preparations 3. Add using sanitized supplementary utensils • Ensure flavouring ingredients are within code. Use FIFO inventory control.
8	Freeze 	<u>Biological</u> Pathogen contamination due to unsanitary equipment. Pathogen contamination due to poor hygiene and improper handling by employees. <u>Allergens</u> Allergen cross contamination due to improper production scheduling.	• Pour cold flavoured mix into an ice cream maker, turn on the machine, and churn according to manufacturer's directions. Sherbet requires a lower refrigerant temperature (-10°C). • Try to limit the incorporation of air (overrun) when freezing sherbet mix. A high overrun results in syrup drainage, lack of firmness and poor body.

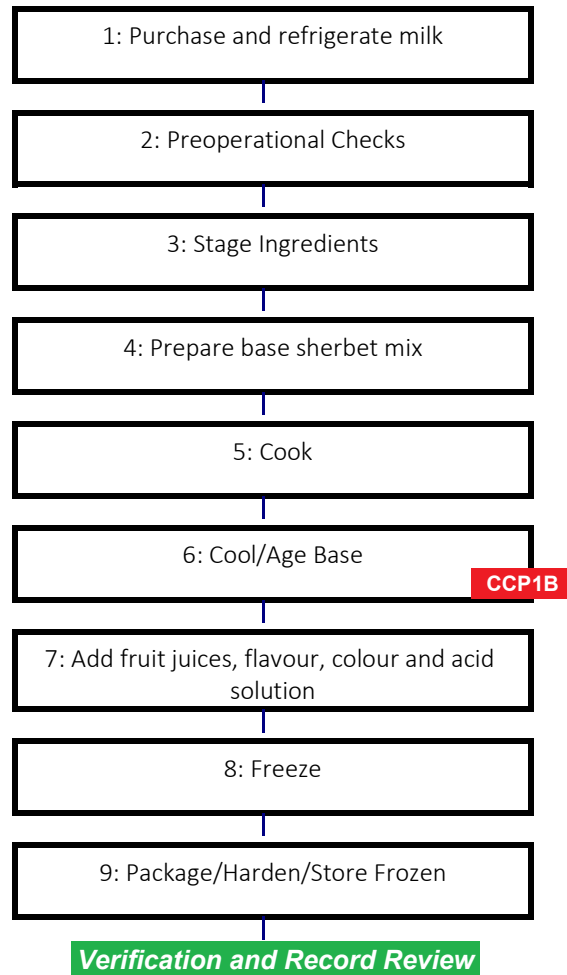
PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
9	Package/Harden/Store Frozen The diagram shows a cross-section of a freezer. On the left, a bucket is shown with an arrow pointing into the freezer compartment. Inside the freezer, a thermometer is visible, displaying a temperature of -18°C.	<u>Biological</u> Pathogen contamination due to condensation falling onto/into uncovered product. Pathogen growth due to inadequate freezing (e.g. time/temperature abuse, improper air flow, space between packages, stacking procedure).	• Date code product before transferring to freezer. • Ensure rapid freezing for control of ice crystal formation

Product Description Form (Foodservice)

Product Category	Frozen Dairy Desserts
1. What is your product name and weight/volume?	Sherbet
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).
3. What are your product's important food safety characteristics (e.g. acidity, water activity, salinity, etc.)?	Frozen, added sugar.
4. What allergens does your product contain?	Milk See list of flavouring ingredients used in sherbet 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?	Stored and distributed at frozen temperature (<-18°C).
7. What is the shelflife of your product under proper storage conditions?	2 to 3 months in freezer (<-18°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 frozen, production date (lot code).

Sherbet
Process Flow Table



Critical Control Points Table: Sherbet

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	CCP1B Cool/Age Base	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.	1. Production worker checks temperature with clean and sanitized probe thermometer. 2. Check temperature every hour until 4 °C is reached. 3. Record on batch report	When critical limits are not being met for one or more product samples. 1. Report slow cooling to Operator. Check cooler and determine if maintenance is required. 2. Place product on hold. Discard sherbet mix if time limit has not been met. 3. Immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. 4. Record all non-conformances and corrective actions on batch report.	1. Operator reviews and signs batch reports at end of production day to ensure that it has been properly completed. 2. Once per week, the Operator ensures that the temperature checks follow the procedure (observes production worker in their task). 3. Operator reviews and signs cooler temperature once per week. 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. 5. Record all observations on the batch report, including the date, the time and initials.	Sherbet 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.

Sherbet Batch Report

Date Made: 2022-Mar-03

Lot Code: 22062

Operator: Joe

Preoperational checks done Yes, JG

Desired Batch Size (Kg) 15 Kg

Ingredients Used

Ingredient	Amount	Code/Lot	Supplier
Sugar	2.25 Kg	21232	Lantic
Corn Syrup	1.0 Kg	23 FE 09	Karo
Ice Cream Mix	3.0 Kg	21232	Internal
Citric Acid	60 g	23 JA 09	Caldic
Gelatin	80 g	23 JA 09	Davis

Process Step	Time	Temp (°C)
Blend ingredients and start cook step	8:15	7
Cook start	8:30	82
Cook end	8:40	82
CCP1B Start cool in ice bath	8:45	82
Cool end	9:30	4
Record temperature of mix after aging in cooler overnight		4

Freezing

Ice Cream Freezer Sanitized Yes, JG

Flavour Preparation Used	Amount (Kg)	Code/Lot	Supplier
Orange Puree	7.5 Kg	21195	Pacific Coast

Observed Deviations and Corrective Actions

Verification by:
Mary Smith

Date of Record Review:
2022-Mar-08