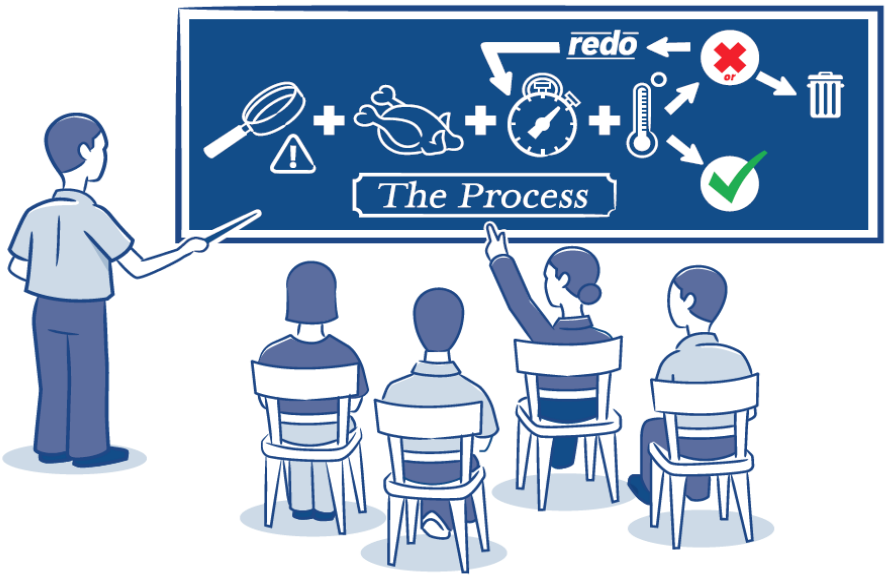
Food Safety Plan Workbook

How to Meet B.C. Regulatory Requirements



BRITISH COLUMBIA | Ministry of Health

Contents

1. Quick Start

Welcome!

This workbook is for food processors operating in British Columbia (B.C.). This includes processors that distribute in B.C. only or those who ship beyond B.C., but are not federally registered.

If your B.C. food processing facility is federally registered and you have written food safety and sanitation plans in place[1]*, those plans meet the B.C. Food Premises Regulation requirements.* You would then already comply with the new provincial food safety regulatory requirements.

This workbook helps you write a food safety plan, based on the seven principles of the Hazard Analysis Critical Control Point (HACCP) system, left. This plan would meet the **minimum** requirements of section 23 of the Food Premises Regulation (the Regulation). This plan needs to be approved by your local health authority by March 26, 2016. This workbook, and sample food safety plans, can be found at: www2.gov.bc.ca/gov/content/health/keeping-bc-healthy-safe/food-safety.

While this workbook guides you in writing a food safety plan that meets the **minimum** regulatory requirements, you do not have to use this workbook to write your food safety plan. You can write your food safety plan in any way that works best for you, as long as it meets the requirements of the

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[1] Federal registration is required for exports and interprovincial shipments in commodities such as dairy, honey, eggs, meat, fish, maple products, and fresh or processed fruits and vegetables. Federal registration may also be required for imports of these same food commodities. Many food products do not currently require federal registration for import or export.
For more information on whether your company or facility should be federally registered, please review the following information on the CFIA web site:
Food imports - http://www.inspection.gc.ca/eng/1376515896184/1376515983781
Food exports - http://www.inspection.gc.ca/eng/1323723342834/1323723662195

Regulation. However, please get approval from your local health authority if you are not sure about what format to use for your food safety plan.

If you already have a food safety plan for your establishment, you can submit it to your local health authority for approval. Just make sure you also have your completed sanitation plan to submit.

If you would like to create a more detailed food safety plan that goes beyond the requirements of the Regulation, you should refer to the *Full Hazard Analysis Critical Control Point (HACCP) Food Safety Plan Workbook* at the website above, or refer federal or other international guidelines. Please note that the *Full Hazard Analysis Critical Control Point (HACCP) Food Safety Plan Workbook* will require more of your time and resources to complete than this workbook.

2. Overview of this Workbook

A food safety plan is a written document that describes how you can control food safety hazards in your food processing establishment. The goal of the plan is to identify biological, chemical, and physical hazards and then to prevent or control these hazards, or reduce hazards to acceptable levels throughout your food process.

This workbook will help you write a food safety plan based on the Hazard Analysis Critical Control Point (HACCP) system. HACCP is a food safety system that will help you to identify, control, and prevent hazards during your production process.

HACCP consists of a HACCP prerequisite programs and a HACCP plan (food safety plan). You are not required to include prerequisite programs in your food safety plan. For information on the prerequisite programs, please see Appendix 3.

In this workbook, a complete food safety plan includes the following three parts:

1. Product Description table
2. Incoming Materials table
3. Food Safety Plan table

Please note:

- You do not have to write a food safety plan for each product you prepare. Instead, you can group products that are prepared in a similar way and write one food safety plan for the group. For example, if you make three kinds of cookies using a similar process, you can prepare a food safety plan for “cookies.”
- However, if you make more than one product, and your products have different process steps (e.g., chicken pot pie and spinach dip), you may need to create a food safety plan for each product.

3. Getting Ready

Describe your product

The first step to getting ready is describing your product. Writing this information down can help you identify possible food safety hazards and how to control the hazards.

The example below shows a completed Product Description table for a cookie processor (a bakery). A blank template of the Product Description table (called the Product Description Template) is in Appendix 2.

Once you have completed your own Product Description table, please include it in your food safety plan. It will be the first part of your final food safety plan. You will also need your Product Description table for other parts of your food safety plan later in this workbook.

Table 1: Sample Product Description – Cookie

Product Description	
1. What is your product name and weight/volume?	Chocolate chip cookie (500 g) Slivered almond cookie (500 g)
2. What type of product is it (e.g., raw, ready-to-eat, ready-to-cook, or ready for further processing, etc.)?	Baked Ready to eat
3. What are your product's important food safety characteristics (e.g., acidity, A_w (water availability) salinity, etc.)?	None
4. What allergens does your product contain?	Chocolate chip cookies contain wheat, egg, milk, and soya allergens. Slivered almond cookies contain wheat, egg, milk, soya, and almond allergens.
5. What restricted ingredients (preservatives, additives, etc.) does your product contain, and in what amounts (e.g., grams)?	None
6. What are your food processing steps (e.g., cooking, cooling, pasteurization, etc.)?	Receiving incoming materials, ambient storage, cool refrigerator storage, packaging material storage in a separate location, weighing ingredients, mixing, sheeting, cutting, spraying cookie sheets, placing cookie dough on cooking sheet, racking, baking, cooling, transferring cookies onto a table, bagging, weighing, metal detecting, retail box packaging and labeling, case packaging and labeling, placing on pallets, room temperature storage, shipping.
7. How do you package your product (e.g., vacuum, modified atmosphere, etc.) and what packaging materials do you use?	Cookies are packaged in plastic film and then in cardboard boxes.
8. How do you store your product (e.g., keep refrigerated, keep frozen, keep dry) in your establishment and when you ship your product?	Room temperature storage. Products are shipped at ambient temperatures in a clean truck.
9. What is the shelf-life of your product under proper storage conditions?	Three months at room temperature.
10. How is the best before date to be noted on your product?	The best before date is printed on the cardboard box as YY MM DD. Example: 15 JA 04 (January 04, 2015)
11. Who will consume your product (e.g., the general public, the elderly, the immunocompromised, infants)?	General population. ***Note 1:*** *Chocolate chip cookies are not suitable for people with egg, milk, soya, or wheat allergies or gluten intolerance.* ***Note 2:*** *Slivered almond cookies are not suitable for people with egg, milk, soya, tree nut (almond), or wheat allergies or gluten intolerance.*
12. How might the consumer mishandle your product, and what safety measures will prevent this?	Products that have passed the best before date can have quality defects – the best before date is printed on the cardboard box.
13. Where will the product be sold?	Food service, retail, distributor, wholesale.
14. What information is on your product label?	Individual cookie box label contains information such as product name, weight, ingredients, allergens, nutritional table, claims, storage and handling instructions, best before date, manufacturing company name, address, and contact information. Corrugated box label contains information such as product name, best before date, quantity of cookie boxes, storage and handling instructions, manufacturing company name, address, and contact information.

List your Incoming Materials

The next step in getting ready to write your food safety plan is listing the incoming materials for your product. Incoming materials include ingredients, food contact packaging materials (e.g., plastic wrap), non-food contact packaging materials (e.g., pallets), food contact processing aids, and chemicals (for hand washing, sanitation and maintenance) used in your product and establishment. Listing your incoming materials and tracking how they move through your establishment will help you find where your hazards are.

The example below shows a completed Incoming Materials table for the same cookie processor (bakery) as before. A blank template of this table (called the Incoming Materials Template) is in Appendix 2.

For more information on listing your incoming materials, see Appendix 4.

Table 2: Sample Incoming Materials – Cookies

Ingredients	
Wheat flour	Shell eggs
Whole wheat flour	Butter
Sugar	Skim milk powder
Baking soda	Chocolate chips
Vanilla flavour	Vegetable oil
Molasses	Slivered almonds
Food contact processing aid materials	
Baking spray	
Food contact packaging materials	
Clear polypropylene plastic films	
Non-food contact packaging materials	
Ink	Pre-printed cardboard boxes
Tape	Corrugated boxes
Plain labels	Wooden pallets
Shrink wrap	
Chemicals (hand washing, sanitation and maintenance)	
Hand soap	Sanitizer
Hand sanitizer	Lubricant
Degreaser	

Once you have completed your own Incoming Materials table, please include it in your food safety plan. It will be the second part of your final food safety plan. You will also need your Incoming Materials table for other parts of your food safety plan later in this workbook.

Process Flow

It may be helpful for you to write down how your make your product. You should be able list all the steps you take in making your product. To help you do this, you could use a list as shown below in the example. A blank template of this table (called the My Process Flow Template) is in Appendix 2.

You could also use your floor plan to create a process flow map, if you choose. An example of the process flow map (called the My Process Flow Map) is in Appendix 2.

Table 3: Sample My Process Flow – Cookie

Process Step Number	Process step (e.g. washing, cooling, drying)
1	Receiving incoming materials
2a	Room temperature storage
2b	Cool refrigerator storage
2c	Packing material storage in a separate location
3	Weighing ingredients
4	Mixing
5	Sheeting
6	Cutting
7	Spraying cookie sheets
8	Placing cookie dough on baking sheet
9	Racking
10	Baking
11	Cooling
12	Transferring cookies onto a table
13	Bagging
14	Weighing
15	Metal detecting
16	Retail box packaging and labelling
17	Case packaging and labelling
18	Placing on pallets
19	Room temperature storage
20	Shipping

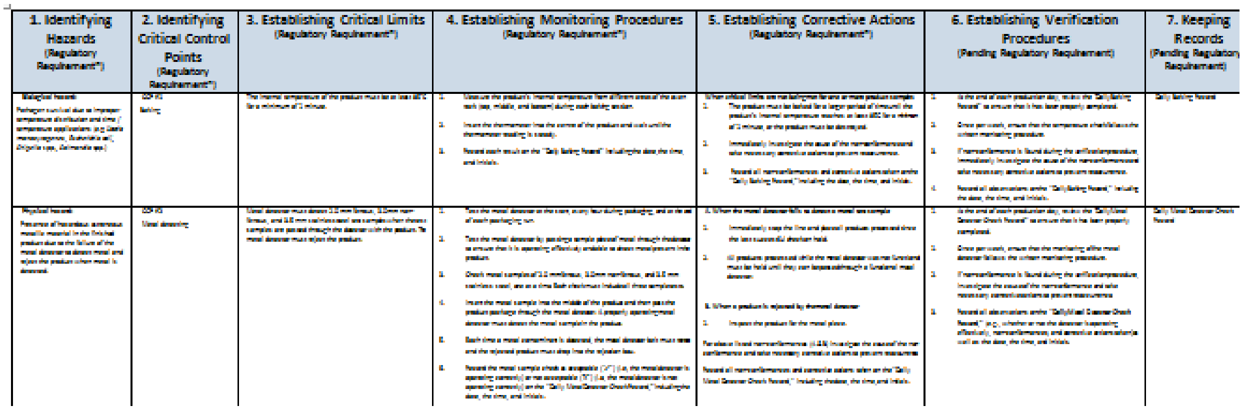
Once you have completed your own Process Flow list or map, please have it ready when you use it for other parts of your food safety plan later in this workbook. You do not have to include your Process Flow list or map in your final food safety plan.

4. Completing Your Food Safety Plan Using the Seven Hazard Analysis Critical Control Point Principles

Now that you have described your product, listed all the incoming materials and materials and written down your process flow, you are ready to write the third part of your food safety plan by filling out the Food Safety Plan Table: Meets Regulatory Requirements, as shown in the table, below. A completed full-sized version of the Food Safety Plan Table: Meets B.C. Regulatory Requirements is in Appendix 1. A blank template of this table is in Appendix 2.

Representation of a Food Safety Plan Table: Meets B.C. Regulatory Requirements

See Appendix 1 for the full-sized table.



1. Identifying Hazards (Regulatory Requirement*)	2. Identifying Critical Control Points (Regulatory Requirement*)	3. Establishing Critical Limits (Regulatory Requirement*)	4. Establishing Monitoring Procedures (Regulatory Requirement*)	5. Establishing Corrective Actions (Regulatory Requirement*)	6. Establishing Verification Procedures (Pending Regulatory Requirement)	7. Keeping Records (Pending Regulatory Requirement)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

There are seven HACCP principles that will be a part of your food safety plan:

1. Identifying hazards
2. Identifying Critical Control Points
3. Establishing Critical Limits
4. Establishing Monitoring Procedures
5. Establishing Corrective Actions
6. Establishing Verification Procedures
7. Keeping Records

Principles one through five are required by the Food Premises Regulation, and principles six and seven are highly recommended.

The rest of this workbook steps you through each of these seven HACCP principles.

5. Principle 1: Identifying Hazards

The first HACCP principle is to identify the food safety hazards specific to your product. Identifying your hazards includes two steps:

1. identifying and assessing the hazards; and
2. identifying measures to control the hazards.

Your focus should be on identifying food safety hazards that are likely to cause illness or injury if they are not controlled.

But first, what is a hazard?

A **hazard** is a material or agent that, when present in the food, can make food unsafe to eat and cause illness, injury or death. There are three types of hazards: 1) biological, 2) chemical and 3) physical.

A **biological hazard** is a microorganism or toxin produced by a microorganism, which can cause illness when ingested.

- Microorganisms include bacteria, yeast, mould, viruses and parasites.
- A microscope is used to view microorganisms.
- Not all microorganisms are hazardous. Some microorganisms are helpful, even necessary (e.g., the microbial culture in the cheese- or yogurt-making process). Some microorganisms are harmful but not hazardous (e.g., spoilage-causing microbes that spoil food and reduce the shelf life of a product).
- Some microorganisms can cause illness when eaten, such as Salmonella, Escherichia coli O157:H7 and Listeria monocytogenes.
- Some microorganisms produce harmful toxins, which can cause illness when eaten, such as Staphylococcus aureus and Clostridium botulinum. Cooking does not destroy some of these toxins.
- Microorganisms can be present anywhere (e.g., in air, water, raw materials, floors, walls, the food handler, dirty equipment). Most microorganisms require water, food, oxygen and favourable temperatures to grow. Food-processing facilities often provide a perfect environment for growth.

A **chemical hazard** is a chemical agent, which may cause injury or illness when eaten or breathed in. These agents are not supposed to be in the food. Examples include pesticides, cleaning chemical residues, antibiotics and toxins (histamines, mycotoxins, etc.).

A **physical hazard** is a material present in the food, which can cause injury to the consumer (e.g., metal, glass, wood, plastic, stone, bone, dust, packaging material or hair).

All these hazards can be transferred because of cross contamination. **Cross-contamination** is the the physical movement or transfer of harmful microorganisms, allergens, chemical contaminants, or any foreign substances from one person, object, food, or place to another. Identifying cross-contamination points helps to ensure that potential hazards at cross-contamination points are considered in your food safety plan.

Cross-contamination can happen when there is a crossover between:

- raw and cooked products (a biological hazard), and
- allergenic products and non-allergenic products (a chemical hazard).
- inedible materials (waste) moving through the production or packaging areas (a biological hazard); and
- employees moving from one production area to other production areas (a biological or chemical hazard).

The following questions can help you to identify some of the potential cross-contamination points in your establishment:

- Is the same area used for storing raw and cooked products? If yes, then this is a potential biological hazard cross-contamination point.
- Is the same area or equipment used for processing or storing allergen- and non-allergen-containing products? If yes, then this is a potential chemical hazard cross-contamination point.
- Do the same employees handle raw and cooked products? If yes, then this is a potential biological hazard cross-contamination point.
- Do the same employees handle products with allergens and products without allergens? If yes, then this is a potential chemical hazard cross-contamination point.
- Is the food processing area also used for storing glass and other packaging materials? If yes, then this is a potential physical hazard cross-contamination point.

Step 1: Identify the hazards

Using the Product Description table, Incoming Materials table, My Process Flow sheet you completed in the **Getting Ready** stage, consider the hazards in your ingredients, the cross-contamination points and your process steps. Think about all of your processing activities, from when you receive incoming materials from your suppliers to when you ship your packaged products to your customers.

Incoming materials, cross-contamination points and process steps can be hazardous when:

- disease-causing microorganisms or toxins are present due to uncontrolled process steps or cross-contamination points; and
- there is a possibility of chemical or physical contamination.

For each step in your My Process Flow sheet, consider what can go wrong with the incoming materials, process steps, and cross-contamination points. Then think about what effects these hazards would have on your customers if they were not controlled. These are the potential hazards in the production of your product.

Your environmental health officer at your local health authority can help you identify hazards in your establishment. The following tools can also assist you to identify hazards in your establishment:

- Product or material specification sheet.
- Sample food safety and sanitation plans on the Ministry of Health website: www2.gov.bc.ca/gov/content/health/keeping-bc-healthy-safe/food-safety. These samples help you develop your plans by providing examples of hazards and controls for many food products.
- Canadian Food Inspection Agency Reference Database for Hazard Identification:
    - http://active.inspection.gc.ca/rdhi-bdrid/english/rdhi-bdrid/introe.aspx?i=3 (Introduction);
    - http://active.inspection.gc.ca/rdhi-bdrid/english/rdhi-bdrid/hazdane.aspx?i=3 (Hazard Identification for Process Steps);
- Canadian Food Inspection Agency Generic HACCP Models:
    - www.inspection.gc.ca/food/safe-food-production-systems/haccp-generic-models-and-guidance documents/eng/1374992202076/1374992233926
- Internet searches for hazards related to your product.

Step 2: Identifying control measures

For each of the hazards you identified, you need to identify control measures that will prevent or eliminate the hazard, or reduce the hazard to an acceptable level.

- There may be more than one control measure for each hazard.
- Control measures can be Hazard Analysis Critical Control Point prerequisite programs (see Appendix 3), process steps or other operational controls.

An example of the process steps used to prepare cookies, with hazards and controls, is found below. The first column of the table identifies which process in your My Process Flow sheet has a hazard. The second column of the table identifies the hazards at each process step. The third column lists the controls for each hazard.

For a more detailed list, please see Appendix 2, Hazard Analysis and Controls table.

Example: Hazard Analysis and Controls – Cookies

Legend: B: Biological hazard, C: Chemical hazard, P: Physical hazard, CCP: Critical control point

Process Step Number	Biological, chemical and physical hazards	Controls
1, 19	B: Potential pathogen due to receipt of non-compliant products and unacceptable transport conditions	Purchase products from approved supplier only, inspect truck and product at each receipt/shipment
1, 19	C: Potential chemical contamination due to receipt of non-compliant products	Inspect products at each receipt/shipment
1, 19	P: Potential physical contamination due to receipt of non-compliant products	Inspect products at each receipt/shipment
2a, 2b, 2c, 18	BP: Potential pathogen contamination due to damaged packaging	Protect damaged products and store products away from wall and off the floor
2b	B: Potential pathogen contamination due to temperature abuse	Monitor refrigerated room temperature
2a, 2b, 2c, 18	B: Potential pathogen contamination due to pests and unsanitary conditions	Store products appropriately. Follow Sanitation Plan
2a, 2b, 18	B: Potential pathogen contamination due to not following first in first out rotation	Label all incoming materials with receiving date and/or best before date
2a, 2b, 18	C: Potential chemical contamination due to improper storage of allergen and non-allergen products	Store allergen and non-allergen products separately
2a, 2b, 2c, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,14, 15, 16, 17, 18	C: Potential chemical contamination from non-food chemicals (sanitation or maintenance chemicals etc.)	Store of non-food chemicals separated from products, remove products when performing sanitation and maintenance
2a, 2b, 2c, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	P: Potential physical contamination due to deteriorating establishment / equipment condition /poor maintenance personnel practices	Monitor establishment and equipment condition, Remove products from the area when performing maintenance
3, 4, 5, 6, 7, 8, 11, 12, 13	B: Potential pathogen contamination due to improper personnel practices / handling	Monitor employee personnel hygiene practices (e.g. hand washing)
3, 4, 5, 6, 7, 8, 11, 12, 13	B: Potential pathogen contamination due to improper cleaning / sanitizing of equipment	Clean and sanitize equipment and area as per the Sanitation Plan
3	B: Potential pathogen contamination due to inadequate amount of food preservative	Weigh correct amount of ingredients as per the recipe
3	C: Potential chemical contamination due to over weighing of preservative	Weigh correct amount of ingredients as per the recipe
3, 4, 5, 6, 7, 8, 11, 12, 13, 15	C: Potential chemical contamination due to improper cleaning / sanitizing of equipment	Monitor chemical concentration prior cleaning
3, 4, 5, 6, 7, 8, 11, 12, 13, 15	C: Potential allergen cross-contamination due to improper cleaning / sanitizing between allergen and non-allergen products	Pre-operation inspection (equipment and area inspection for cleanliness prior to start production)
3, 4, 5, 6, 7, 8, 11, 12, 13, 15	P: Potential physical contamination due to improper personnel practices	Monitor employee personnel hygiene practices (e.g., no jewelry, use hairnet)
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13	P: Potential physical contamination due to wear and damaged machine parts etc.	Monitor equipment condition and Step # 14. Metal detecting
9	B: Pathogens survival due to improper temperature distribution and time / temperature applications (e.g. *Listeria monocytogenes*, *Escherichia coli, Shigella* spp., *Salmonella* spp.)	Baking
9	B: Potential pathogen survival due to oven malfunctioning	Calibrate and maintain ovens as planned
10	B: Potential pathogen contamination due to air borne contaminants or condensate	Maintenance of refrigeration as per preventative maintenance program

Process Step Number	Biological, chemical and physical hazards	Controls
14	P: Presence of hazardous extraneous metallic material in finished product due to failure of the metal detector to detect metal and reject product when metal is detected.	Metal detecting
15	B: Potential pathogen contamination due to incorrect labeling and best before date	Monitor product labeling at start, middle and at the end of the packaging
15,16	B: Potential pathogen contamination due to improper seals	Monitor case packaging seals
15	C: Presence of undeclared allergens in the finished product can cause severe allergenic reactions in sensitive consumers	Retail box packaging and labelling
17	P: Potential physical contamination due to improper packaging practices	Train employee in using undamaged pallets and proper shrink wrapping

Completing Principle 1: Identifying Hazards

To identify your hazards and controls, look at your My Process Flow list, and use the Hazard Analysis and Controls template (called the Hazard Analysis and Controls Template) from Appendix 2. Fill in the process steps in the first column. Determine the hazards at each process step, and enter them into the second column. Then list what you do to control the hazards in the third column. The example above can guide you.

It is important for the controls to be sufficient in preventing or eliminating the hazard, or reducing the hazard risk to an acceptable level. You will also need to find out if there are any hazards that cannot be controlled in your establishment. If a hazard that will make people ill cannot be controlled, then you must change your process to eliminate the hazard.

You will need this information to help you identify Critical Control Points in HACCP Principle 2. Although you have identified all your hazards, please do not complete the first column of your Food Safety Plan Table: Meets B.C. Regulatory Requirements in Appendix 2 yet. You will have to do this later.

6. Principle 2: Identifying Critical Control Points

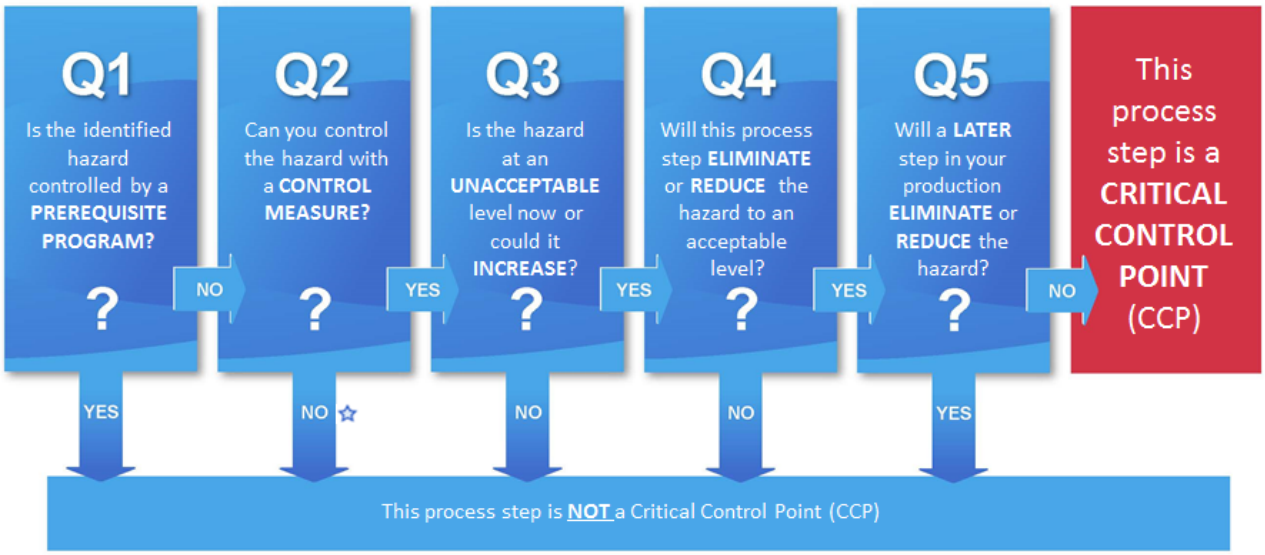
Now that you have identified your hazards and the controls for those hazards, you are ready to identify the Critical Control Points in your process.

Critical Control Points (CCP) are the points in the production process where you can prevent or eliminate a hazard – or reduce the risk – by taking certain actions. Critical Control Points also the points in your process where, if you fail to prevent or eliminate a hazard, you will not be able to prevent or eliminate that hazard anymore.

For example, in many processes, cooking is a CCP. The control measure (heating to a specific temperature for a specific amount of time) makes sure that any pathogens (which are biological hazards) are killed. For more examples of CCPs, please see the Food Safety Plan Table: Meets B.C. Regulatory Requirements in Appendix 1.

Now you are ready to identify your CCPs, using a decision tree?.

Critical Control Point Decision Tree



☆ If the hazard can not be controlled by any control measure you should modify this process step, your production process, or your product.

The Critical Control Point Decision Tree, above, will help you identify the CCPs in your own process. Use the Decision Tree to find out which process steps (e.g., washing, baking, cooking or drying) in your production are CCPs.

Let us use a few examples of hazards in the previous cookie examples to work through the Decision Tree. You will need the Hazard Analysis and Controls – Cookies table and the My Process Flow – Cookies list to work through the examples, below. For each of the hazards in the Hazard Analysis and Controls – Cookies table, go through the questions in the Decision Tree:

Example 1: Pathogens in flour; process step 2a: room temperature storage

Question 1: Is the identified hazard controlled by a prerequisite program?
Answer: Yes. It is controlled by prerequisite #3. A Purchasing and Suppler: letter of guarantee is required. This process step in NOT a CCP for this hazard.

Example 2: Hair found in the food; process step 3: weighing ingredients

Question 1: Is the identified hazard controlled by a prerequisite program?
Answer: Yes. It is controlled by prerequisite #6, Personal hygiene and training. This process step in NOT a CCP for this hazard.

Example 3: Pathogens in raw dough; process step 4: mixing

Question 1: Is the identified hazard controlled by a prerequisite program?
Answer: No. Go to Question 2.

Question 2: Can you control the hazard with a control measure?
Answer: Yes, the hazard can be controlled by baking. Go to Question 3.

Question 3: Is the hazard at an unacceptable level now or could it increase?
Answer: Yes, it is either at an unacceptable level now or it could increase or both. Go to Question 4.

Question 4: Will this process step eliminate or reduce the hazard to an acceptable level? (Remember, you are checking to see if mixing controls the hazard of pathogens in raw dough)
Answer: No. This process step will not eliminate or reduce the hazard to an acceptable level. This process step is NOT a CCP for this hazard.

Example 4: Metal (e.g. twist tie) in the baked product, process step 6: cutting

Question 1: Is the identified hazard controlled by a prerequisite program?
Answer: No. Go to Question 2.

Question 2: Can you control the hazard with a control measure?
Answer: Yes, the hazard can be controlled by metal detecting. Go to Question 3.

Question 3: Is the hazard at an unacceptable level now or could it increase?
Answer: Yes, it is either at an unacceptable level now or it could increase or both. Go to Question 4.

Question 4: Will this process step eliminate or reduce the hazard to an acceptable level? (Remember, you are checking to see if cutting the cookie dough controls the metal hazard.)
Answer: No. This process step will not eliminate or reduce the hazard to an acceptable level.
This process step is NOT a CCP for this hazard.

Example 5: Pathogens in the baked product; process step 9: baking
Question 1: Is the identified hazard controlled by a prerequisite program?
Answer: No. Go to Question 2 in the CCP Decision Tree.

Question 2: Can you control the hazard with a control measure?
Answer: Yes, the hazard can be controlled by baking. Go to Question 3.

Question 3: Is the hazard at an unacceptable level now or could it increase?
Answer: Yes, it is either at an unacceptable level now or it could increase, or both. Go to Question 4.

Question 4: Will this process step eliminate or reduce the hazard to an acceptable level? (Remember, you are checking to see if baking controls hazard of pathogens in the baked product.)
Answer: Yes. Go to question 5 to see if this is a CCP.

Question 5: Will a later step in your production eliminate or reduce the hazard to an acceptable level?
Answer: No. There is no later step in the production of the cookies that would control the pathogens in raw cookie dough. This process step (baking) is a CCP for this hazard (pathogens in your baked product).

Example 6: Metal (e.g. twist tie) in the baked product, process step 14: metal detecting
Question 1: Is the identified hazard controlled by a prerequisite program?
Answer: No. Go to Question 2 in the CCP Decision Tree.

Question 2: Can you control the hazard with a control measure?
Answer: Yes, the hazard can be controlled by metal detecting. Go to Question 3.

Question 3: Is the hazard at an unacceptable level now or could it increase?
Answer: Yes, it is either at an unacceptable level now or it could increase. Go to Question 4.

Question 4: Will this process step eliminate or reduce the hazard to an acceptable level? (Remember, you are checking to see if metal detecting controls the metal hazard.)
Answer: Yes. Go to question 5.

Question 5: Will a later step in your production eliminate or reduce the hazard to an acceptable level?
Answer: No. There is no later step to control metal your baked product. This process step (metal detecting) is a CCP for this hazard (metal in your finished product)

For the cookie example, there are three CCPs: (1) baking to control pathogens (example 5 above); (2) metal detecting to control metal in the finished product (example 6 above); and (3) labels on the retail box packaging to control allergens.

Once the CCPs are identified, the hazards and CCPs can be added to columns 1 and 2 in the Food Safety Plan Table: Meets B.C. Regulatory Requirements. For the cookie example, you can see how the

hazards and the CCPs are entered in the Food Safety Plan Table: Meets B.C. Regulatory Requirements table in Appendix 1.

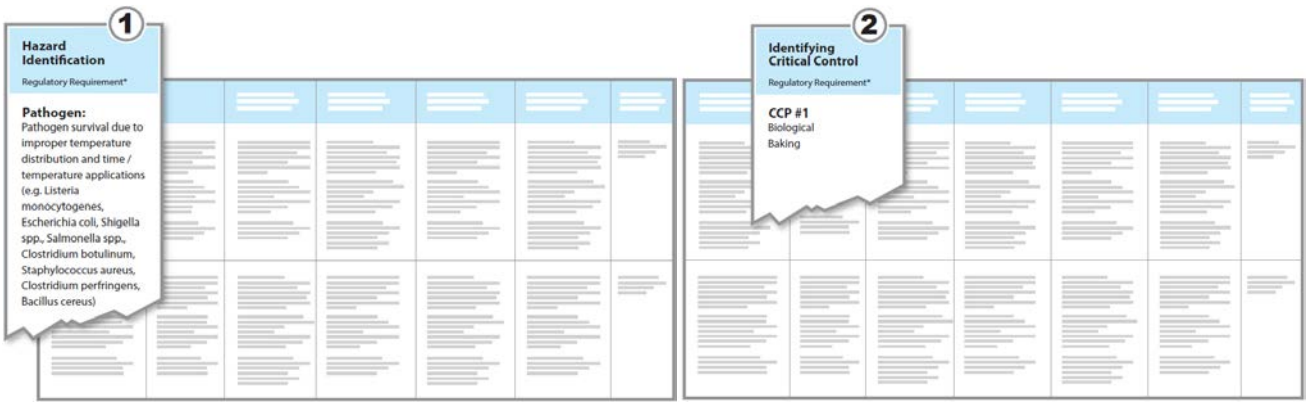
In the cookie example, the first hazard controlled by the first CCP is in column 1 and is:

> ***Biological hazard:***
> *Pathogens survival due to improper temperature distribution and time / temperature applications (e.g. Listeria, Escherichia coli, Shigella, Salmonella)*

The corresponding CCP controls biological hazards and goes in the second column like this:

> *CCP 1 Biological (or CCP B, or CCP1 B- you choose how you want to name your CCPs)*
> *baking.*

Completing Principle 2: Identifying Critical Control Points



To identify your own CCPs for your food safety plan, use your Hazard Analysis and Controls table and go through the questions in the Decision Tree.

Once you have identified your CCPs, add the hazards that are controlled by CCPs to Column 1 of your Food Safety Plan Table: Meets B.C. Regulatory Requirements (called the Food Safety Plan Table: Meets B.C. Regulatory Requirements Template) in Appendix 2. Then add the CCPs to column 2 of the table.

When you use the Decision Tree with your own production process, you can confirm your own CCPs with an Environmental Health Officer at local health authority.

7. Principle 3: Establishing Critical Limits

A **Critical Limit** is a standard that you must meet to ensure that a health hazard does not occur at a Critical Control Point.

For example, a Critical Limit at the cooking step would be cooking to a minimum specific internal temperature for a minimum amount of time.

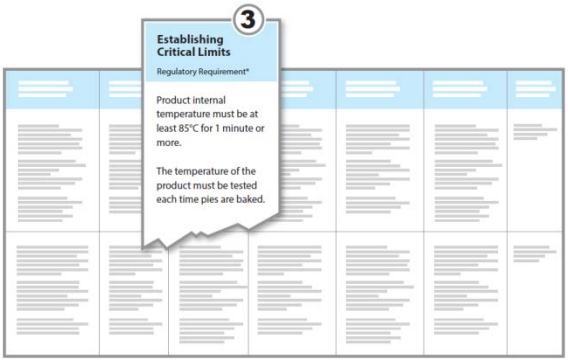
Critical Limits help distinguish safe products from potentially unsafe products.

- Critical Limits can be regulatory requirements or industry standards.
- They often include measurements of temperature, time, moisture level, salt level, acidity (pH), and/or water availability (A_w).

Please see the examples of Critical Limits for cookies in the Food Safety Plan Table: Meets B.C. Regulatory Requirements in Appendix 1 and the other sample food safety plans on the Ministry of Health website. Here is a summary of the Critical Limits for cookies:

> *1) Baking is the first CCP in the Food Safety Plan table. It controls biological hazards. The Critical Limit is to bake the cookie until the internal product temperature is 85˚C for at least 1 minute.*
>
> *2) Metal detecting is the second CCP in the Food Safety Plan table. It controls physical hazards. In this case, the hazard is due to metal. The Critical Limit is to pass the product through the metal detector with the test metal pieces inside a package of cookies.*
>
> *3) Retail box packaging and labelling is the third CCP in the Food Safety Plan table. It controls allergens in the finished product. The Critical Limit is to ensure the correct label is on the package.*

Completing Principle 3: Establishing Critical Limits

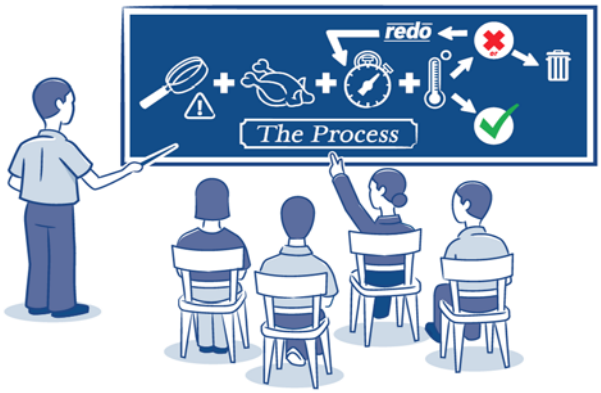


For your food safety plan, identify each Critical Limit in column 3 for each of your CCPs in column 2 of your Food Safety Plan Table: Meets B.C. Regulatory Requirements Template, located in Appendix 2.

8. Principle 4: Establishing Monitoring Procedures

Monitoring Procedures are observations or measurements used to assess whether a Critical Limit is being met.

For example, Monitoring Procedures at a cooking Critical Control Point may include taking the internal temperature of the product with a thermometer and using a stopwatch or timer to ensure the internal temperature holds for a specific amount of time.



Monitoring Procedures tell you what, how and when to check. Monitoring Procedures must:

1. be practical and realistic;
2. allow you to identify, locate and control the unsafe product quickly and easily; and
3. be regularly repeated based on product type, amount and process.

The Monitoring Procedure for the first CCP (i.e., baking) in the cookie example involves three steps. These are:

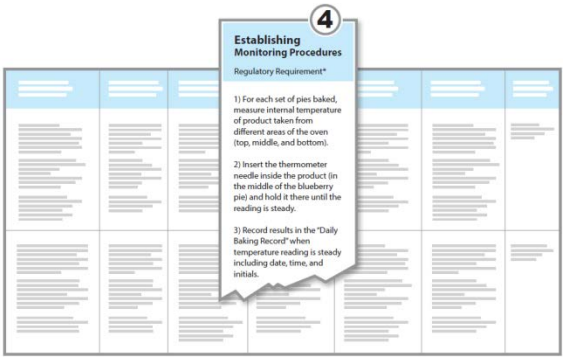
1) For each set of cookies baked measure internal temperature of product taken from different areas of the oven (top, middle, and bottom).

2) Insert the thermometer inside the product (in the middle of the cookie) and hold it there until the thermometer reading is steady.

3) Record results in the "Daily Baking Record" when temperature reading is steady including date, time, and initials.

For more examples of Monitoring Procedures, see the Food Safety Plan Table: Meets B.C. Regulatory Requirements in Appendix 1 and the other sample food safety plans on the Ministry of Health website.

Completing Principle 4: Establishing Monitoring Procedures



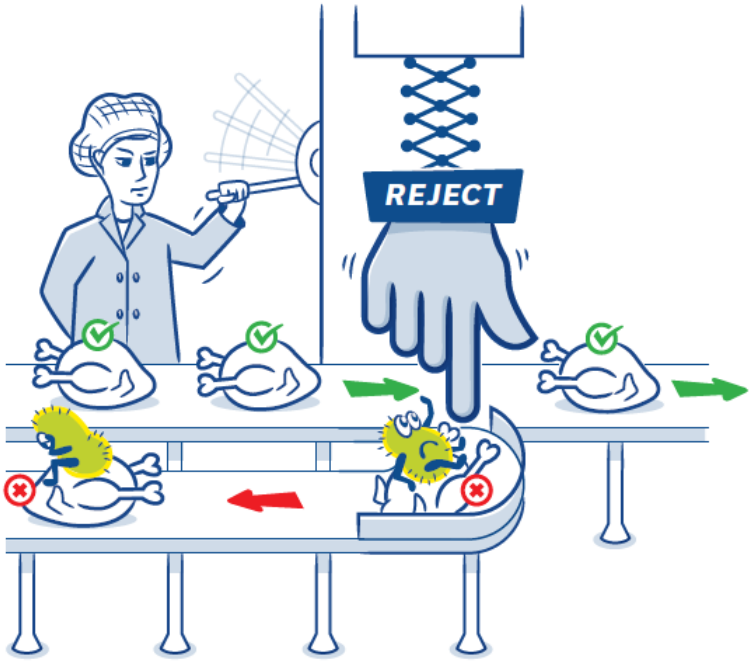
For your own food safety plan, identify your Monitoring Procedures in column 4 for your Critical Limits in column 3 of your Food Safety Plan Table: Meets B.C. Regulatory Requirements Template, located in Appendix 2.

If a piece of equipment needs to be calibrated for accuracy, then include calibration procedures and the name of the person trained in equipment calibration and monitoring procedures (e.g., thermometer calibration, pH meter calibration).

9. Principle 5: Establishing Corrective Actions

A **Corrective Action** must be taken to correct your production process if monitoring shows that a Critical Limit has not been met (this is called “non-conformance”). In food production, it is better to correct problems during processing rather than discover a problem after the product is finished.

For example, look at cooking as a Critical Control Point. If the required internal temperature has not been reached, a Corrective Action would be to continue cooking the product until the required internal temperature is reached. If the cooking temperature cannot be reached, a Corrective Action would be to discard the product.



The Corrective Actions for the first CCP (i.e., baking) in the cookie example, are:

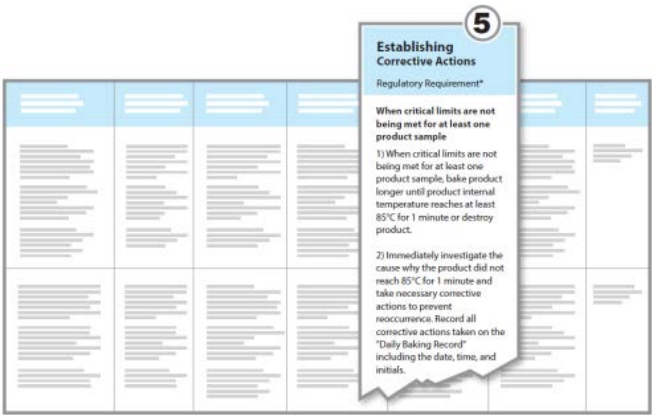
When critical limits are not being met for at least one product sample:

1) When critical limits are not being met for at least one product sample, bake product longer until product internal temperature reaches at least 85°C for 1 minute or destroy product.

2) Immediately investigate the cause why the product did not reach 85°C for 1 minute and take necessary corrective actions to prevent reoccurrence. Record all corrective actions taken on the "Daily Baking Record" including the date, time, and initials.

For more examples of Corrective Actions, see the Food Safety Plan Table: Meets B.C. Regulatory Requirements in Appendix 1 and the other sample food safety plans on the Ministry of Health website.

Completing Principle 5: Establishing Corrective Actions

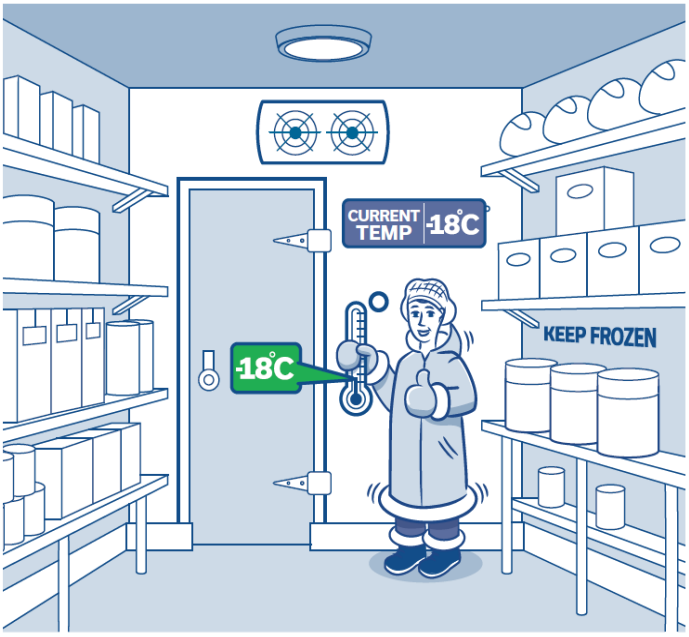


For your own food safety plan, identify your Corrective Actions in column 5 for your Monitoring Procedures in column 4 of your Food Safety Plan Table: Meets B.C. Regulatory Requirements Template, located in Appendix 2.

10. Principle 6: Establishing Verification Procedures – Recommended

Verification is using procedures, tests, sampling and other evaluation tools (in addition to monitoring) to see if a control measure at a Critical Control Point is working correctly.

Verification also ensures the completion of Monitoring and Corrective Actions, according to your food safety plan. If possible, someone other than the person who does the monitoring should do the Verification.



Verification makes sure:

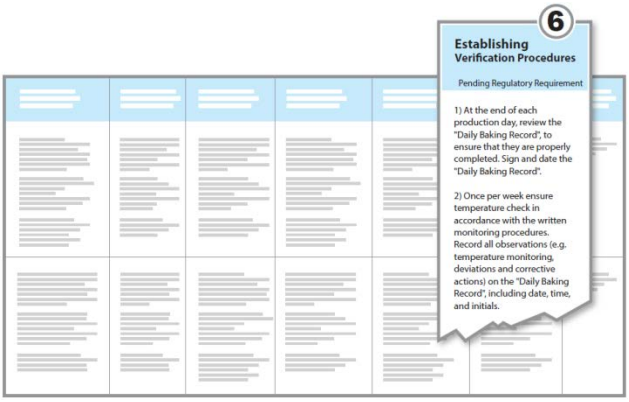
- monitoring and Corrective Actions are recorded correctly;
- monitoring and Corrective Actions are performed properly;
- employee training is effective; and
- the food safety plan is effective.

The Verification Procedures for the first CCP (i.e., baking) in the cookie example, are:

> *1) At the end of each production day, review the "Daily Baking Record", to ensure that they are properly completed. Sign and date the "Daily Baking Record".*
>
> *2) Once per week ensure temperature check in accordance with the written monitoring procedures. Record all observations (e.g. temperature monitoring, deviations and corrective actions) on the "Daily Baking Record", including date, time, and initials.*

For more examples of Verification Procedures, see the Food Safety Plan Table: Meets B.C. Regulatory Requirements in Appendix 1 and the other sample food safety plans on the Ministry of Health website.

Completing Principle 6: Establishing Verification Procedures



For your own food safety plan, identify your Verification Procedures in column 6 for your Corrective Actions in column 5 of your Food Safety Plan Table: Meets B.C. Regulatory Requirements Template, located in Appendix 2.

11. Principle 7: Keeping Records – Recommended

Your local health authorities may review Records to verify that your food safety plan is being followed.

You should:

- keep records to demonstrate how well your food safety plan works;
- review your processing records to make sure your product is being made safely; and
- be able to produce these records if anyone ever questions the safety of your product.

The Record for the first CCP (i.e., baking) in the cookie example is:

Daily Baking Record

This record contains information about the baking process. A sample Daily Baking Record for cookies can be found in Appendix 1.

For other examples of Records, please see the Food Safety Plan Table: Meets B.C. Regulatory Requirements in Appendix 1 and the other sample food safety plans on the Ministry of Health website.

Completing Principle 7: Keeping Records

For your own food safety plan, identify the Records you need in column 6 for each of your Critical Control Points in column 2 of your Food Safety Plan Table: Meets B.C. Regulatory Requirements Template, located in Appendix 2.

12. Your Completed Food Safety Plan

Have you completed your:

- Product Description table?
- Incoming Materials table?
- Hazard Analysis Critical Control Point principles 1-5 and the recommended principles 6 and 7?

If so, then CONGRATULATIONS! You have completed your food safety plan! It is ready for you to submit to your local health authority for approval.

Before you submit your food safety plan to your local health authority for approval, make sure you have also completed a sanitation plan. You will have to submit a food safety plan and sanitation plan to your local health authority for approval by March 26, 2016.

If you do not have a sanitation plan yet, please use the *Sanitation Plan Workbook – How to meet B.C. Regulatory Requirements* to write your own sanitation plan. If you do not have a copy of the *Sanitation Plan Workbook*, you can find a copy of it at: www2.gov.bc.ca/gov/content/health/keeping-bc-healthy-safe/food-safety

Appendix 1: Sample Food Safety Plan – Cookies

Product Description

Product Description	
1. What is your product name and weight/volume?	Chocolate chip cookie (500 g) Slivered almond cookie (500 g)
2. What type of product is it (e.g., raw, ready-to-eat, ready-to-cook, or ready for further processing, etc.)?	Baked Ready to eat
3. What are your product's important food safety characteristics (e.g., acidity, A_w (water availability), salinity, etc.)?	None
4. What allergens does your product contain?	Chocolate chip cookies contain wheat, egg, milk, and soya allergens. Slivered almond cookies contain wheat, egg, milk, soya, and almond allergens.
5. What restricted ingredients (preservatives, additives, etc.) does your product contain, and it what amounts (e.g., grams)	None
6. What are your food processing steps (e.g., cooking, cooling, pasteurization, etc.)?	Receiving incoming materials, ambient storage, cool refrigerator storage, packaging material storage in a separate location, weighing ingredients, mixing, sheeting, cutting, spraying cookie sheets, placing cookie dough on cooking sheet, racking, baking, cooling, transferring cookies onto a table, bagging, weighing, metal detecting, retail box packaging and labeling, case packaging and labeling, placing on pallets, room temperature storage, shipping.
7. How do you package your product (e.g., vacuum, modified atmosphere, etc.) and what packaging materials do you use?	Cookies are packaged in plastic film and then in cardboard boxes.
8. How do you store your product (e.g., keep refrigerated, keep frozen, keep dry) in your establishment and when you ship your product?	Room temperature storage. Products are shipped at ambient temperatures in a clean truck.
9. What is the shelf-life of your product under proper storage conditions?	Three months at room temperature.
10. How is the best before date to be noted on your product?	The best before date is printed on the cardboard box as YY MM DD. Example: 15 JA 04 (January 04, 2015)
11. Who will consume your product (e.g., the general public, the elderly, the immunocompromised, infants)?	General population. ***Note 1:*** *Chocolate chip cookies are not suitable for people with egg, milk, soya, or wheat allergies or gluten intolerance.* ***Note 2:*** *Slivered almond cookies are not suitable for people with egg, milk, soya, tree nut (almond), or wheat allergies or gluten intolerance.*
12. How might the consumer mishandle your product, and what safety measures will prevent this?	Products that have passed the best before date can have quality defects – the best before date is printed on the cardboard box.
13. Where will the product be sold?	Food service, retail, distributor, wholesale.
14. What information is on your product label?	Individual cookie box label contains information such as product name, weight, ingredients, allergens, nutritional table, claims, storage and handling instructions, best before date, manufacturing company name, address, and contact information. Corrugated box label contains information such as product name, best before date, quantity of cookie boxes, storage and handling instructions, manufacturing company name, address, and contact information.

Incoming Materials

Ingredients	
Wheat flour	Shell eggs
Whole wheat flour	Butter
Sugar	Skim milk powder
Baking soda	Chocolate chips
Vanilla flavour	Vegetable oil
Molasses	Slivered almonds
Food contact processing aid materials	
Baking spray	
Food contact packaging materials	
Clear polypropylene plastic films	
Non-food contact packaging materials	
Ink	Pre-printed cardboard boxes
Tape	Corrugated boxes
Plain labels	Wooden pallets
Shrink wrap	
Chemicals (hand washing, sanitation and maintenance)	
Hand soap	Sanitizer
Hand sanitizer	Lubricant
Degreaser	

Food Safety Plan Table: Meets B.C. Regulatory Requirements CHOCOLATE CHIP or SLIVERED ALMOND COOKIES

1. Identifying Hazards	2. Identifying Critical Control Points	3. Establishing Critical Limits	4. Establishing Monitoring Procedures	5. Establishing Corrective Actions	6. Establishing Verification Procedures	7. Keeping Records
Biological hazard: Pathogen survival due to improper temperature distribution and time / temperature applications (e.g. *Listeria monocytogenes*, *Escherichia coli, Shigella* spp., *Salmonella* spp.)	**CCP #1** Baking	The internal temperature of the product must be at least 85°C for a minimum of 1 minute.	1. Measure the product's internal temperature from different areas of the oven rack (top, middle, and bottom) during each baking session. 2. Insert the thermometer into the centre of the product and wait until the thermometer reading is steady. 3. Record each result on the "Daily Baking Record" including the date, the time, and initials.	**When critical limits are not being met for one or more product samples** 1. The product must be baked for a longer period of time until the product's internal temperature reaches at least 85°C for a minimum of 1 minute, or the product must be destroyed. 2. Immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. 3. Record all non-conformances and corrective actions taken on the "Daily Baking Record," including the date, the time, and initials.	1. At the end of each production day, review the "Daily Baking Record" to ensure that it has been properly completed. 2. Once per week, ensure that the temperature check follows the written monitoring procedure. 3. If non-conformance is found during the verification procedure, immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. 4. Record all observations on the "Daily Baking Record," including the date, the time, and initials.	Daily Baking Record
Physical hazard: Presence of hazardous extraneous metallic material in the finished product due to the failure of the metal detector to detect metal and reject the product when metal is detected.	**CCP #2** Metal detecting	Metal detector must detect 2.0 mm ferrous, 3.0 mm non-ferrous, and 3.5 mm stainless steel test samples when the test samples are passed through the detector with the product. The metal detector must reject the product.	1. Test the metal detector at the start, every hour during packaging, and at the end of each packaging run. 2. Test the metal detector by passing a sample piece of metal through the detector to ensure that it is operating effectively and able to detect metal present in the product. 3. Check metal samples of 2.0 mm ferrous, 3.0 mm non-ferrous, and 3.5 mm stainless steel, one at a time. Each check must include all three sample tests.	**A. When the metal detector fails to detect a metal test sample** 1. Immediately stop the line and place all products processed since the last successful check on hold. 2. All products processed while the metal detector was not functional must be held until they can be passed through a functional metal detector.	1. At the end of each production day, review the "Daily Metal Detector Check Record" to ensure that it has been properly completed. 1. Once per week, ensure that the monitoring of the metal detector follows the written monitoring procedure. 2. If non-conformance is found during the verification procedure, investigate the cause of the non-conformance and take necessary corrective	Daily Metal Detector Check Record

1. Identifying Hazards	2. Identifying Critical Control Points	3. Establishing Critical Limits	4. Establishing Monitoring Procedures	5. Establishing Corrective Actions	6. Establishing Verification Procedures	7. Keeping Records
			4. Insert the metal sample into the middle of the product and then pass the product package through the metal detector. A properly operating metal detector must detect the metal sample in the product. 5. Each time a metal contaminant is detected, the metal detector belt must retract and the rejected product must drop into the rejection box. 6. Record the metal sample check as acceptable ("✓") (i.e., the metal detector is operating correctly) or not acceptable ("X") (i.e., the metal detector is not operating correctly) on the "Daily Metal Detector Check Record," including the date, the time, and initials.	**B. When a product is rejected by the metal detector** 1. Inspect the product for the metal piece. For above listed non-conformances (A and B) investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. Record all non-conformances and corrective actions taken on the "Daily Metal Detector Check Record," including the date, the time, and initials.	actions to prevent reoccurrence. 3. Record all observations on the "**Daily Metal Detector Check Record**," (e.g., whether or not the detector is operating effectively, non-conformances, and corrective actions taken) as well as the date, the time, and initials.	
Chemical hazard: Presence of undeclared allergens in the finished product can cause severe allergenic reactions in sensitive consumers.	**CCP #3** Retail box packaging and labeling	The finished product must be packaged in a box that has the correct allergen information on it. The product label is printed on the packaging material (i.e. cardboard box).	1. Daily, check the product packaging material (i.e. cardboard box) at the start, middle, and end of the packaging process, and each time a new lot of packaging materials is opened. Sample two cardboard boxes at each check. 2. At the start of the packaging process, ensure that there are no product packaging materials from previous packaging processes present in the area. 3. Check the product packaging material (i.e. cardboard box) to confirm that the correct packaging materials are being used for the product.	**A. Previous product packaging materials are present in the packaging area** 1. Immediately place the packaging area on hold. 2. Remove all previous product packaging materials. 3. Inspect the area and ensure that there are no previous product packaging materials present before releasing the packaging area for packaging.	1. Review the "Daily Packaging Record" to ensure that it has been properly completed. 2. Once per week, ensure that the packaging material check follows the written monitoring procedure. 3. If non-conformance is found during the verification procedure, investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence.	Daily Packaging Record

1. Identifying Hazards	2. Identifying Critical Control Points	3. Establishing Critical Limits	4. Establishing Monitoring Procedures	5. Establishing Corrective Actions	6. Establishing Verification Procedures	7. Keeping Records
			4. Visually compare the packaging material (the cardboard box) to the master packaging material as provided. 5. Ensure that the product name, the ingredients listing, and the allergens in the product being packaged are correctly listed, using the master packaging material as a comparison. 6. Ensure that all leftover packaging materials are removed from the packaging area at the end of the packaging process. 7. Record each packaging check as acceptable ("✓") or not acceptable ("X") on the "Daily Packaging Record," including the date, the time, and initials.	**B. Incorrect packaging materials are being used for the product** 1. Immediately stop the line and place all packaged products since the last successful check on hold. 2. Products put on hold must be repackaged with the correct packaging materials or if critical limit cannot be met, product must be destroyed. For above listed non-conformances (A and B) investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. Record all non-conformances and corrective actions taken on the "Daily Packaging Record," including the date, the time, and initials.	1. Record all observations (e.g., packaging checks, non-conformances, and corrective actions taken) on the "Daily Packaging Record," including the date, the time, and initials.	

Daily Baking Record
Critical Control Point #1 (Biological)

Critical Limits: The internal temperature of the product must be at least 85°C for a minimum of 1 minute.

Date	Time	Batch Number	Product Name	Product's Internal Temperature (Product selected from top, middle, and bottom racks of oven)			Initials
				Top	Middle	Bottom	
2015/11/02	12:00	1	Cookie	87°C	87°C	86°C	CC
2015/11/02	13:04	2	Cookie	86°C	88°C	82°C	CC
2015/11/02	16:00	3	Cookie	87°C	89°C	85°C	CC

Record non-conformance and corrective actions here:

2015/11/02: Batch 2:

The internal temperature of cookie on bottom rack did not reach 85°C. Cookies were placed on hold and baked again until the internal temperature reached 85°C. CC

Daily verification:	MN	Date: 2015/11/02
Weekly verification:	ML	Date: 2015/11/09

Daily Metal Detector Check Record
Critical Control Point #2 (Physical)

Critical Limits: Metal detector must detect 2.0 mm ferrous, 3.0 mm non-ferrous, and 3.5 mm stainless steel test samples when the test samples are passed through the detector with the product. The metal detector must reject the product.

Record the metal sample check as acceptable ("✓") (i.e., the metal detector is operating correctly) or not acceptable ("X") (i.e., the metal detector is not operating correctly)

Date	Time	Batch Number	Product Name	2.0 mm Ferrous	3.0 mm Non- ferrous	3.5 mm Stainless Steel	Initials
2015/11/02	12:00 (start)	1	Cookie	✓	✓	✓	SM
	13:05	1	Cookie	✓	✓	✓	SM
	14:07	1	Cookie	X	✓	✓	SM
	15:37	1	Cookie	✓	✓	✓	SM
	16:04	1	Cookie	✓	✓	✓	SM
	17:05	1	Cookie	✓	✓	✓	SM
	17:44 (finish)	1	Cookie	✓	✓	✓	SM

Record non-conformance and corrective actions here:
At 14:07, 2.0 mm ferrous test sample was not detected by the metal detector. The line was stopped. Products were placed on hold since the last successful check at 13:05. At 15:30, the metal detector was repaired and calibrated. SM

Daily verification:	MN	Date: 2015/11/02
Weekly verification:	ML	Date: 2015/11/09

Daily Packaging Record
Critical Control Point # 3 (Chemical)

Critical Limits: The finished product must be packaged in a box that has the correct allergen information on it. The product label is printed on the packaging material (i.e. cardboard box).

Record observation as acceptable ("✓") and not acceptable ("X")

Date	Product Name	Batch Number	Number of Cases	Packaging Material Check				Initials
				Start	Middle	End	At new lot of packaging materials	
2015/11/02	Cookie	1	19	✓	✓	✓	✓	CL
	Cookie	2	44	✓	✓	✓	✓	CL
	Cookie	3	26	✓	✓	✓	✓	CL
	Cookie	4	28	✓	✓	✓	✓	CL

Record non-conformance and corrective actions here:

Daily verification:	MN	Date: 2015/11/02
Weekly verification:	ML	Date: 2015/11/09

Appendix 2: Hazard Analysis Critical Control Point-based Food Safety Plan Templates

Copies of these templates and others can be found on the Ministry of Health website at: www2.gov.bc.ca/gov/content/health/keeping-bc-healthy-safe/food-safety.

Product Description Template

Product Description	
1. What is your product name and weight/volume?	
2. What type of product is it (e.g., raw, ready-to-eat, ready-to-cook, or ready for further processing, etc.)?	
3. What are your product's important food safety characteristics (e.g., acidity, A_w (water availability), salinity, etc.)?	
4. What allergens does your product contain?	
5. What restricted ingredients (preservatives, additives, etc.) does your product contain, and it what amounts (e.g., grams)	
6. What are your food processing steps (e.g., cooking, cooling, pasteurization, etc.)?	
7. How do you package your product (e.g., vacuum, modified atmosphere, etc.) and what packaging materials do you use?	
8. How do you store your product (e.g., keep refrigerated, keep frozen, keep dry) in your establishment and when you ship your product?	
9. What is the shelf-life of your product under proper storage conditions?	
10. How is the best before date to be noted on your product?	
11. Who will consume your product (e.g., the general public, the elderly, the immunocompromised, infants)?	
12. How might the consumer mishandle your product, and what safety measures will prevent this?	
13. Where will the product be sold?	
14. What information is on your product label?	

Incoming Materials Template

Ingredients	
Food contact processing aid materials	
Food contact packaging materials	
Non-food contact packaging materials	
Chemicals (hand washing, sanitation and maintenance)	

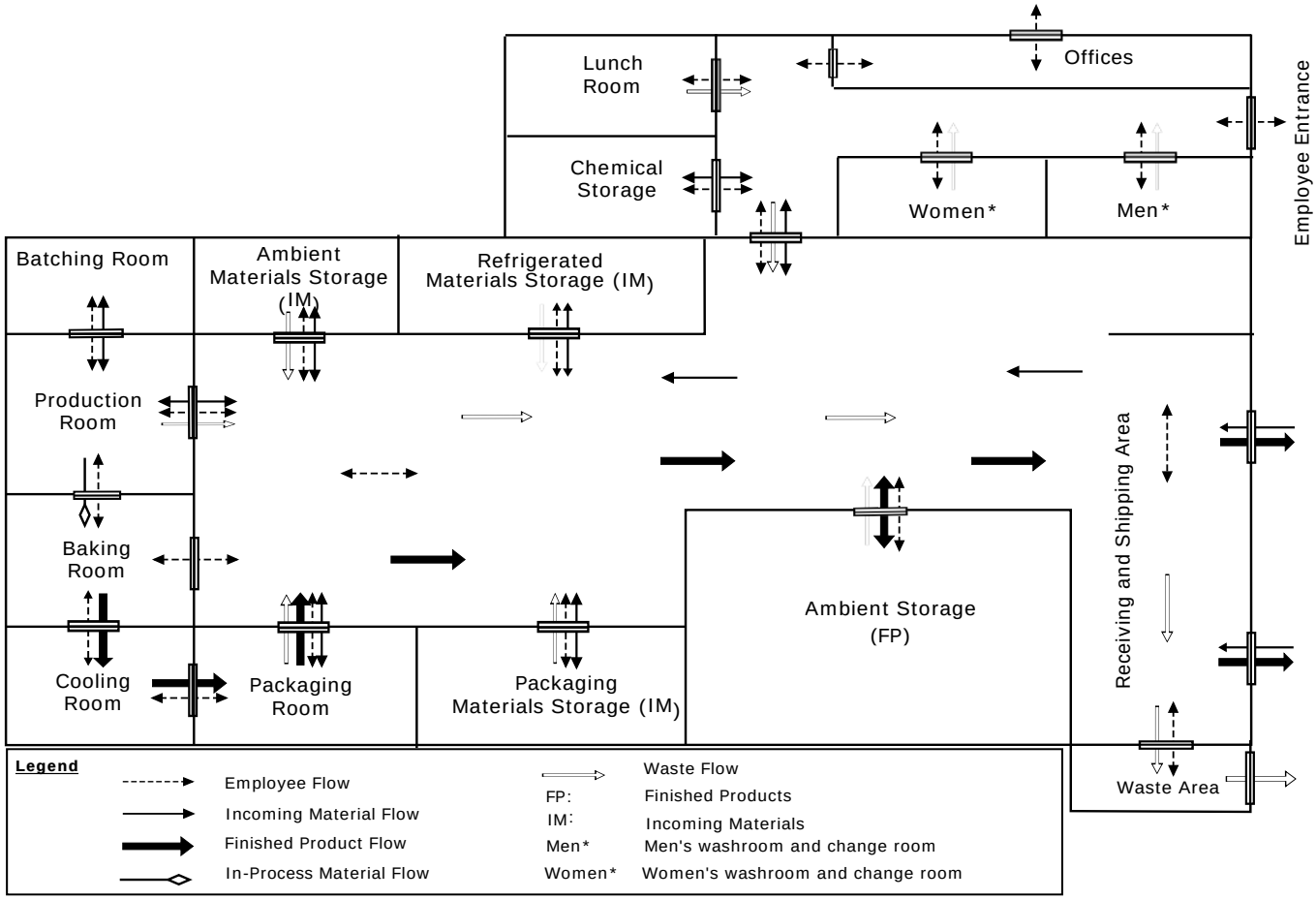
Process Flow Template

Process Step Number	Process step (e.g., washing, cooling, drying)

Establishment Process Flow Map

You may find it helpful in explaining your process to make a copy of your floor plan and show the location of equipment. Draw arrows (colour or black and white) to show how the ingredients (➢➢➢), (→→→), and food products (⇨⇨⇨) move within the establishment.

Food Safety Plan Name: Cookie



Hazard Analysis and Controls Template

Process steps	Biological, chemical, and physical hazards	Measures that can be taken to control the hazards

Food Safety Plan Table: Meets B.C. Regulatory Requirements Template

PRODUCT NAME:

1. Identifying Hazards	2. Identifying Critical Control Points	3. Establishing Critical Limits	4. Establishing Monitoring Procedures	5. Establishing Corrective Actions	6. Establishing Verification Procedures	7. Keeping Records

Daily Baking Record – MODIFY based on your Critical Control Point

Critical Control Point #1 (Biological) Template Product Name: _____

Critical Limits:

Date	Time	Batch Number	Product Name	Product's Internal Temperature (Product selected from top, middle, and bottom racks of oven)			Initials
				Top	Middle	Bottom	
Record non-conformance and corrective actions here:							
Daily verification:						Date:	
Weekly verification:						Date:	

Daily Metal Detector Check Record -MODIFY based on your Critical Control Point

Critical Control Point #2 (Physical) Template Product Name: _____

Critical Limits:

Record observations as acceptable ("✓") or not acceptable ("X").

Date	Time	Batch Number	Product Name	2.0 mm Ferrous	3.0 mm Non- ferrous	3.5 mm Stainless Steel	Initials

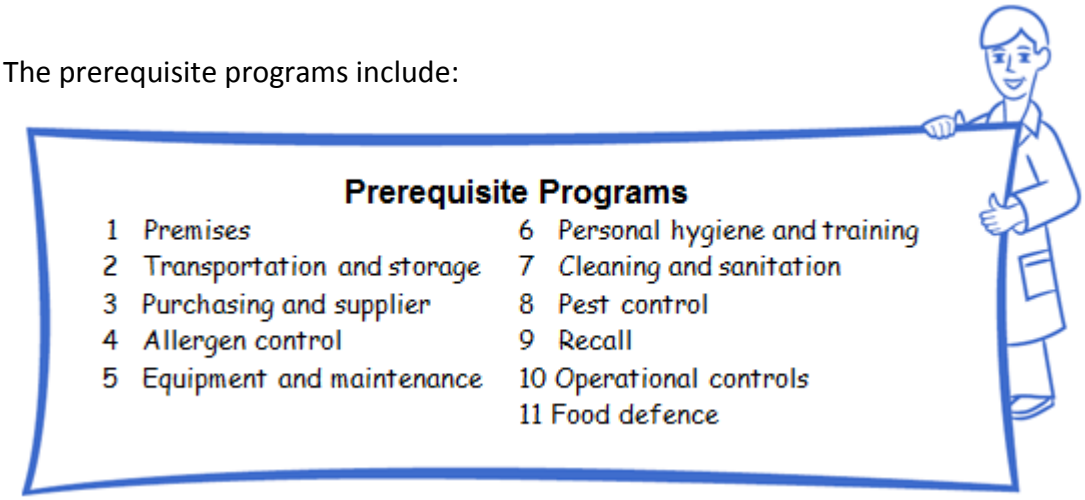
Record non-conformance and corrective actions here:

Daily verification:		Date:
Weekly verification:		Date:

Appendix 3: Hazard Analysis Critical Control Point Prerequisite Programs

There are 11 Hazard Analysis Critical Control Point (HACCP) prerequisite programs that could apply to food processors. These 11 prerequisite programs are the conditions and activities that help you create a clean environment and good manufacturing practices for your establishment. These programs will also help you to become even more aware of your surroundings and your processes as you write your food safety plan.

The prerequisite programs include:



1. Premises

Interior and exterior areas of the premises (or establishment) must be maintained and monitored to prevent contamination (biological, chemical or physical) of the food products.

- The establishment should be protected from outside contaminants, and surrounding roadways should be maintained regularly to minimize environmental hazards.
- Food-grade materials should be used wherever food is produced, stored, packaged, received or shipped; production and storage areas must have appropriate lighting; and lighting and glass windows should be protected with shatterproof coverings.
- The establishment should have appropriate heating, air conditioning and ventilation, and there should be adequate employee amenities and hand-washing stations.

2. Transportation and storage

All incoming materials, finished products and carriers should be inspected to make sure they are free from damage and tampering.

- Incoming materials should be labeled with the product name, ingredients, manufacturing company name, and lot number and/or best before date.
- Carriers must be constructed, maintained, cleaned, unloaded and loaded in a way that prevents contamination, damage or deterioration of the food product.
- Food safety requirements of the finished product must be met prior to shipping.
- Incoming materials and finished products must be stored under appropriate conditions. A FIFO (“first in, first out” or “first expired, first out”) rotation should be followed.

3. Purchasing and supplier

Incoming materials must be safe and of good quality. All sources of food must be approved under section 11 of the Food Premises Regulation. Suppliers should provide:

- An ingredients specification sheet; a packaging material specification sheet; food and non-food chemical specification sheets; a material safety data sheet (MSDS); a food-grade material letter; and allergen information.
- A guarantee that its products comply with regulations and were produced, stored and transported according to good agricultural and manufacturing practices.

4. Allergen control

There is no processing step to reduce or eliminate undeclared allergens in food products.

- Identify all allergens in incoming materials and finished products, and verify allergens through pre-operation inspections or allergen swabs.
- If your finished products contain different allergens, control for cross-contamination.

5. Equipment and maintenance

Equipment must meet specifications in the Food Premises Regulation.

- Food contact surfaces must be smooth, non-corrosive, non-absorbent and non-toxic.
- Equipment must be accessible for cleaning, sanitizing, maintenance and inspection.
- Utensils should be made of easy-to-clean, non-toxic materials that do not present a chemical, biological or physical hazard to the food.
- Your establishment should have an equipment maintenance program, an equipment and instrument calibration program, and a utility monitoring program.
- Maintain a list of equipment that requires regular maintenance and/or calibration; develop a maintenance/calibration schedule and maintenance/calibration procedures, and keep maintenance/calibration records.
- Water and ice must meet potability (cleanliness) requirements, compressed air should be monitored for microbial contamination, and food-grade gases must be used where required.

6. Personnel hygiene and training

Your personnel hygiene program should include:

- policies about clothing and accessories, eating and drinking on the establishment, and sanitation and health;
- a list of employees who should receive training; and
- appropriately timed training sessions (at start of employment, when changes are made to the program and at regular intervals) and records of personnel training.

7. Cleaning and sanitation

The cleaning and sanitation prerequisite program ensures all parts of the establishment and your equipment are cleaned and sanitized on a scheduled basis.

The cleaning and sanitation will be a part of your sanitation plan (not your food safety plan). A sanitation plan is required under section 24 of the Food Premises Regulation. Your final food safety plan and sanitation plan must be submitted together to your local health authority.

For information on how to write a sanitation plan, please see:
www2.gov.bc.ca/gov/content/health/keeping-bc-healthy-safe/food-safety

8. Pest control

Pests (e.g., insects, rodents, birds) can contaminate food, ingredients, packaging materials and food contact surfaces. Your pest control program makes sure the establishment is free from pests.

Pesticide use will be a part of your sanitation plan (not your food safety plan). A sanitation plan is required under section 24 of the Food Premises Regulation. Your final food safety plan and sanitation plan must be submitted together to your local health authority.

For information on how to write a sanitation plan, please see:
www2.gov.bc.ca/gov/content/health/keeping-bc-healthy-safe/food-safety

9. Recall

Food recalls can be necessary when a food product has been identified as unsafe and must be removed from the market quickly.

- Food products must be labeled correctly to allow your customers to use the product safely and to make product recall possible
- Your recall team should include individual(s) responsible for recall decisions, technical/quality assurance, production, government/agency communications, media communication, complaint investigation and customer relations.
- Performing mock recalls will help make sure your recall program works.

10. Operational controls

Operational control programs might include:

- quality control programs; and
- label creation and approval programs.

11. Food defence

A food defence program ensures your food products are protected from intentional contamination. This prerequisite program might include:

- securing the establishment, and inspecting procedures at receiving and shipping; and
- monitoring of employees, contractors and visitors.

Appendix 4: Details on Incoming Materials

A complete list of incoming materials (food and non-food) helps you to identify possible hazards and develop the controls to prevent, eliminate, or reduce the risk of them. If a hazard is not identified, food safety may be compromised.

Identifying your incoming materials:

- Review the product recipe/formula, the product label, the manufacturing process and the customer requirements.
- Think of a list of incoming materials by yourself or with your HACCP team.
- Collect incoming materials information from your supplier(s):

1. **Information on ingredients** can be found on the product specification sheet, allergen information, label, material safety data sheet (for food chemicals only) and preservative percentage.

2. **Information on food contact packaging materials** can be found on the material specification sheet, allergen information and food grade letter. Food contact packaging materials come into direct contact with the food (e.g., plastic bags, trays, cans, bottles, lids).

3. **Information on non-food contact packaging materials** can be found on the material specification sheet and allergen information. Non-food contact packaging materials do not come into direct contact with the food (e.g., corrugated boxes, labels, pallets).

4. **Information on food contact processing aids** can be found on the material specification sheet, allergen information and food grade letter. Food contact processing aids are substances or materials used in processing but not present in any significant amount in the finished product (e.g., enzymes used in juice extraction, some types of antimicrobials substances for use on meat).

5. **Information on chemicals** (for hand washing, cleaning and maintenance) can be found on the material safety data sheet, allergen information, food grade letter and labels.

Writing your list of incoming materials:

- Use the template in Appendix 2. List all the incoming materials you have identified individually. For example, if “flour” is an ingredient in your product, list all the flours you use separately (e.g., wheat flour, whole wheat flour, corn flour).

Walk through your establishment:

- Have you identified all your incoming materials?

Appendix 5: Considerations for Hazard Analysis Critical Control Point Principles 3, 4, 5 & 6

For each of your Critical Control Points, your procedures for Principle 3 (Establishing Critical Limits), Principle 4 (Establishing Monitoring Procedures), Principle 5 (Establishing Corrective Actions) and Principle 6 (Establishing Verification Procedures) can include the steps below. You can write your Critical Limits, Monitoring Procedures, Corrective Action Procedures and Verification Procedures in any way that works best for you.

If you choose to write your Critical Limits, Monitoring Procedures, Corrective Action Procedures and Verification Procedures in a table, you can also use the templates in Appendix 2.

Steps to take for establishing your Critical Limits, Monitoring Procedures, Corrective Action Procedures and Verification Procedures:

- **Analyzing Hazards**
  - Identify the type of hazard.
  - Describe the hazard to be controlled by the Critical Control Point.
  - You can copy this information from Principle #1: Analyzing Hazards.

- **Identifying Critical Control Points**
  - Record the Critical Control Point number, if there is more than one. (i.e., the first Critical Control Point in the process step would be "1", with the following points numbered sequentially).
  - If possible, identify where the Critical Control Point is located in your process.

- **Establishing Critical Limits**
  - Describe the acceptable Critical Limits for the Critical Control Point.
  - Describe the Critical Limit in terms of what is acceptable and what is unacceptable.

- **Responsible person(s)** (optional)
  - Record who will be responsible for any Monitoring, Corrective Action and Verification procedures.

- **Frequency**
  - Record when and how often monitoring needs to be performed.
  - Record the instrument calibration frequency, if applicable.

- **Establishing Monitoring Procedures**
    - Describe in detail your monitoring steps. For example:
        - List what will be inspected and/or measured (e.g., product temperature or water activity).
        - Define or describe the locations for your checks and/or measurements (e.g., top, middle, and bottom tray of your oven).
        - Indicate how the monitoring will take place (e.g., by inserting a thermometer into the product or by placing a metal test wand inside a loaf of bread).
        - Indicate whether you have instrument calibration procedures and, if so, how often instruments are monitored and/or calibrated.
        - Indicate where monitoring results are recorded.

- **Establishing Corrective Actions**
    - Analyze your Monitoring Procedures and identify all scenarios where/when your Critical Limits may not be met during normal operations.
    - For each identified scenario, describe in detail who is responsible for undertaking the Corrective Action Procedure and how this Corrective Action Procedure will be used to correct the scenario and meet the Critical Limit.

- **Establishing Verification Procedures**
    - Describe in detail your verification steps, including what kind of verification will be completed, what procedure will be followed, who is responsible for verification and where observations will be recorded.

Appendix 6: Glossary

Biological hazard: Any microorganism or toxin produced by a microorganism that can cause illness when eaten (e.g., bacteria, virus, yeast, mould, parasite).

Chemical hazard: Any chemical agent that may cause injury or illness when ingested or inhaled.

Calibration: To determine, check or rectify the graduation of something (any instrument giving quantitative measurements).

Control *(v)*: To take all necessary actions to ensure and maintain compliance with criteria in the Hazard Analysis Critical Control Point-based food safety plan.

Control *(n)*: The state in which correct procedures are being followed and Hazard Analysis Critical Control Point criteria are being met.

Control measure: Any action that can prevent or eliminate a food safety hazard or reduce the hazard to an acceptable level.

Corrective Action: Any action taken to regain control of a hazard when the results of the monitoring at the Critical Control Point show a loss of control, or any action taken to determine the effect of the hazard on a product or to prevent a reoccurrence of the problem.

Critical Control Point: A point, step or procedure during which a control measure can be applied. It is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level.

Critical Control Point decision tree: A sequence of questions that can be used to determine where and when in the food production process Critical Control Points are located.

Critical Limit: The maximum and/or minimum level at which a biological, chemical or physical factor must be controlled at a critical control point in order to prevent or eliminate a food safety hazard, or to reduce the occurrence of a food safety hazard to an acceptable level. A critical limit helps distinguish a safe food product from a potentially unsafe food product.

Cross-contamination: The physical movement, or transfer, of harmful micro-organisms, allergens, chemical contaminants or any foreign substances from one person, object, food or place to another.

Food safety plan (or Hazard Analysis Critical Control Point-based food safety plan): A document prepared in accordance with the principles of Hazard Analysis Critical Control Point to ensure control of hazards that affect food safety.

Hazard Analysis Critical Control Point: A science-based food safety system that identifies, evaluates and controls hazards that affect food safety.

Hazard Analysis Critical Control Point principles: Seven principles for the development of a Hazard Analysis Critical Control Point-based food safety plan.

Hazard Analysis Critical Control Point team: The person or group of people involved in the development, implementation, and maintenance of the Hazard Analysis Critical Control Point system in a food processing establishment.

Hazard: A material or agent that, when present in the food or food processing establishment, can make food unsafe to eat and/or cause illness, injury or death. A hazard can be biological, chemical or physical.

Hazard analysis: The process of collecting and evaluating information on hazards and conditions leading to their presence, in order to decide which hazards are significant for food safety and should be addressed in the Hazard Analysis Critical Control Point-based food safety plan.

Immunocompromised people: Individuals who may be at higher risk of food-borne and other illness due to their weakened immune-system responses.

Monitor *(v)*: To conduct a planned sequence of observations or measurements to determine if your prerequisite program is operating correctly and that Critical Control Points are being managed (controlled) to make sure food is safe.

Non-conformance: Failure to meet a Critical Limit.

Physical hazard: Any material present in the food that can cause injury to the consumer.

Pathogen: A microorganism, such as a bacterium, which can cause illness in humans.

pH: A way of expressing the acidity or alkalinity of a substance. The measurement is expressed on a scale from 0 to 14, where 0 is extremely acidic, 7.0 is neutral and 14 is extremely alkaline.

ppm: Parts per million.

Processing aid: A substance or material used to assist in the processing of a food product, which may or may not be present in the finished product.

Salinity: A measure of the salt concentration in a particular substance.

Step: A point, procedure, operation or stage in the food processing chain, from primary production to final consumption.

Validation: The condition of having obtained evidence that a particular element of the Hazard Analysis Critical Control Point-based food safety plan is effective.

Verification: The application of procedures, tests, and other forms of evaluation, in addition to monitoring, in order to determine compliance with the Hazard Analysis Critical Control Point-based food safety plan.

Water activity (A_w): A measure of the availability of water in food for bacterial growth.

Appendix 7: References

Food Safety Plans

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Health Canada. Lists of Permitted Food Additives. Retrieved from: www.hc-sc.gc.ca/fn-an/securit/addit/list/index-eng.php

General Reference Links

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http://www.hc-sc.gc.ca/fn-an/securit/addit/index-eng.php

Health Canada: List of Permitted Food Additives
http://www.hc-sc.gc.ca/fn-an/securit/addit/list/index-eng.php

CFIA Reference Hazard Data Base
http://www.inspection.gc.ca/food/safe-food-production-systems/food-safety-enhancement-program/rdhi/eng/1384900871739/1384900941583