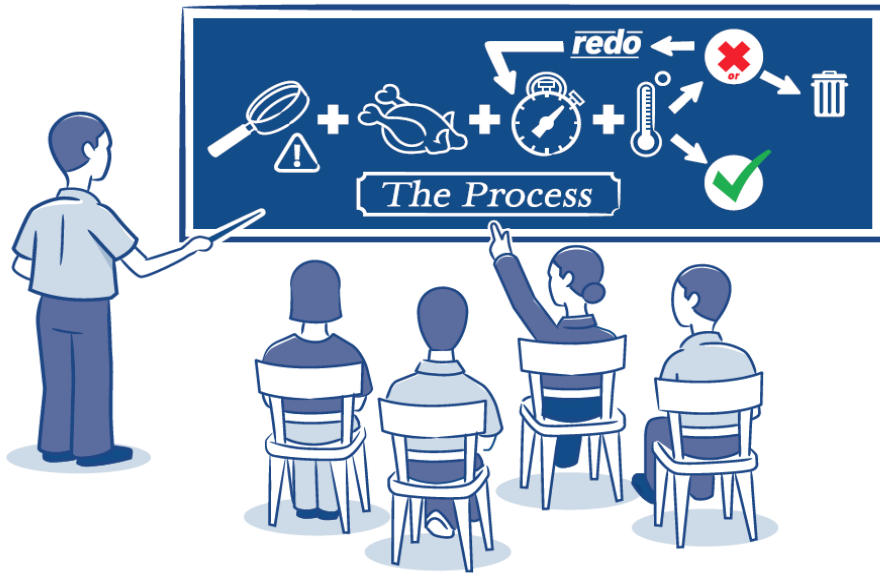


Sample Food Safety Plan MEETS BC REGULATORY REQUIREMENTS

READY TO EAT SAUSAGE



Ministry of
Health

Product Description

Product Description	
1. What is your product name and weight/volume?	Ready to eat sausage (beef) Ready to eat sausage (pork) (450 g, 10 pieces)
2. What type of product is it (e.g., raw, ready-to-eat, ready-to-cook, or ready for further processing, etc.)?	Cooked Ready to eat
3. What are your product's important food safety characteristics (e.g., acidity, A _w , salinity, etc.)?	None
4. What allergens does your product contain?	Wheat
5. What restricted ingredients (preservatives, additives, etc.) does your product contain, and in what amounts (e.g., grams)?	Preservative - sodium nitrite (Nitrite in the finished product is between 180 ppm - 200 ppm)
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, nitrite weighing, weighing, grinding, mixing, transfer to trolley, refrigerated storage, stuffing, hanging on smoke house rack, hot smoking, cooling, cutting, vacuum packaging, date coding, metal detecting, case packaging and labeling, palletizing, refrigerated storage, shipping.
7. How do you package your product (e.g., vacuum, modified atmosphere, etc.) and what packaging materials do you use?	Vacuum packaging Sausages are vacuum packaged in plastic film. Packaged sausages are packed in corrugated 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?	Keep refrigerated. Fresh sausage packages are shipped in a clean, temperature-controlled truck (less than or equal to 4°C)
9. What is the shelf-life of your product under proper storage conditions?	Sausage shelf life is 45 days at refrigerated temperatures (less than or equal to 4°C)

Product Description	
<p>10. How is the best before date to be noted on your product? (When product shelf life is more than 3 months, lot code or manufacturing date is to be printed on product label.)</p>	<p>The best before date is printed on the product package as YY MM DD. Example: 15 JA 04 (January 04, 2015)</p>
<p>11. Who will consume your product (e.g., the general public, the elderly, the immunocompromised, infants)?</p>	<p>Ready to eat product for the general population. Note: Ready to eat sausage is not suitable for people with wheat allergies or gluten intolerance.</p>
<p>12. How might the consumer mishandle your product, and what safety measures will prevent this?</p>	<p>1. Products not stored at correct temperatures can cause illness and can have quality defects – storage and handling instructions are on the label. 2. Products that have passed the best before date can cause illness and can have quality defects – the best before date is printed on the plastic film.</p>
<p>13. Where will the product be sold?</p>	<p>Food service, retail, wholesale and distributor.</p>
<p>14. What information is on your product label?</p>	<p>Individual product package label contains information such as product name, weight, ingredients listing including allergen, nutritional table, storage and handling instructions, best before date, preparation instructions, manufacturing company name, address and contact information. Corrugated box label contains information such as product name, best before date, quantity, storage and handling instructions, preparation instructions, manufacturing company name, address and contact information.</p>

Incoming Materials

Ingredients	
Beef trims	Salt
Pork trims	Black pepper
Natural hog casing	Paprika
Wheat flour	Prague powder
Corn starch	Sodium acetate
Dextrose	Water
Food contact processing aid materials	
Steam	
Food contact packaging materials	
Pre-printed plastic films	
Non-food contact packaging materials	
Corrugated boxes	Tape
Plain labels	Shrink wrap
Ink	Wooden pallets
Chemicals (hand washing, sanitation and maintenance)	
Hand soap	Sanitizer
Hand sanitizer	Lubricant
Degreaser	

Food Safety Plan Table: Meets BC Regulatory Requirements

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)
<p>Biological hazard: Pathogen growth or survival due to inadequate addition of preservative (e.g., <i>Clostridium botulinum</i>, <i>Clostridium perfringens</i>, <i>Listeria monocytogenes</i>)</p> <p>Chemical hazard: More than 200 ppm of nitrite in the finished product due to incorrect weighing</p>	<p>CCP # 1 Nitrite Weighing</p>	<p>1) Nitrite content in the finished product must be between 180 ppm and 200 ppm</p> <p>2) Nitrite content in the finished product must never be greater than 200 ppm</p>	<p>1) Calculate nitrite ppm at each weighing.</p> <p>2) Calibrate the scale to ensure it is working correctly before weighing the product.</p> <p>3) Check the correct percentage of sodium nitrite from the curing salt bag label or product specification sheet.</p> <p>4) Calculate nitrite ppm in finished product using the formula below:</p> <p>Sausage Mix (in kg) = SM Preservative (in g) = P Sodium Nitrite in Preservative (as a %) = SNP</p> <p>Total Emulsion (in kg) = $SM + (P \times 10^{-3})$</p> <p>Total Amount of Sodium Nitrite in Curing Salt (in g) = $P \times (SNP \div 100)$</p> <p>Nitrite in Finished Product (in ppm) = $(\text{Total Amount of Sodium Nitrite in Curing Salt} \times 10^{-3} \times 10^6) \div \text{Total Emulsion}$</p> <p>5) Record the results of the calculation on the "Daily Nitrite Weighing Record," including the date, the time, and initials.</p>	<p>When the critical limit is not being met</p> <p>1) Immediately must place all products on hold for this batch.</p> <p>2) The products must be reprocessed to meet critical limits. If critical limits cannot be met, the products must be destroyed.</p> <p>3) Investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence.</p> <p>4) Record all non-conformances and corrective actions taken on the "Daily Nitrite Weighing Record," including the date, the time, and initials.</p>	<p>1) At the end of each production day, review the "Daily Nitrite Weighing Record" to ensure that it has been properly completed.</p> <p>2) Once per week, ensure that the monitoring of the nitrite weighing check follows the written monitoring procedure.</p> <p>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.</p> <p>4) Record all observations (e.g., nitrite ppm, non-conformances, and corrective actions) on the "Daily Nitrite Weighing Record," including the date, the time, and initials.</p>	<p>Daily Nitrite Weighing Record</p>

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<p>Biological hazard: Pathogen survival due to improper temperature distribution and/or improper time / temperature applications (e.g., <i>Salmonella</i> spp., <i>Clostridium botulinum</i>, <i>Clostridium perfringens</i>, <i>Campylobacter jejuni</i>, <i>Escherichia coli</i>, <i>Escherichia coli</i> 0157:H7, <i>Yersinia</i> spp., <i>Listeria monocytogenes</i>, <i>Vibrio vulnificus</i>, <i>Staphylococcus aureus</i> and enterotoxin, <i>Taenia</i> spp., <i>Cysticercus bovis</i>)</p>	<p>CCP # 2 Hot Smoking</p>	<p>The internal temperature of the product must be at least 71°C (159.8°F) for at least 15 seconds.</p>	<ol style="list-style-type: none"> 1. Measure the product’s internal temperature from different areas of the smoke house rack (top, middle, and bottom) during each smoking session. 2. Insert the thermometer into the centre of the product and wait until the thermometer reading is steady. 3. Record the each result on the “Daily Hot Smoking Record” including the date, the time, and initials. 	<p>When critical limits are not being met for one or more product samples</p> <ol style="list-style-type: none"> 1. The product must be smoked for a longer period of time until the product’s internal temperature reaches at least 71°C (159.8°F) for a minimum of 15 seconds. If the limit cannot be met, the product must be destroyed. 1. Immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence.. 2. Record all non-conformances and corrective actions taken on the “Daily Hot Smoking Record,” including the date, the time, and initials. 	<ol style="list-style-type: none"> 1. At the end of each production day, review the “Daily Hot Smoking 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 Hot Smoking Record,” including the date, the time, and the initials. 	<p>Daily Hot Smoking Record</p>

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<p>Biological hazard: Pathogen contamination due to inadequate cooling (e.g., <i>Clostridium perfringens</i>, <i>Listeria monocytogenes</i>)</p>	<p>CCP # 3 Cooling</p>	<p>During cooling, the product’s internal temperature must not remain between 60°C (140°F) and 20°C (70°F) for more than 2 hours. The product’s internal temperature must not remain between 60°C (140°F) and 4°C (40°F) for more than 4 hours.</p>	<ol style="list-style-type: none"> 1. Measure the product’s internal temperature every hour during cooling. 2. Calibrate the thermometer to ensure it is working correctly before measuring the internal temperature of the product. 3. Measure the product’s internal temperature from different trays of the trolley (top, middle, and bottom) at each check. 4. Insert the thermometer into the centre of the product and wait until the thermometer reading is steady. 5. Record the results from the three readings from different trays on the “Daily Cooling Record,” including the date, the time, and initials. 	<p>When critical limits are not being met for one or two or all samples</p> <ol style="list-style-type: none"> 1. Immediately place all products that do not meet the critical limit on hold. 2. Products put on hold must be re-cooked and re-cooled to meet the critical limit. If the critical limit is not being met, the product must be destroyed. 3. Investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. 4. Record all non-conformances and corrective actions taken on the “Daily Cooling Record,” including the date, the time, and initials. 	<ol style="list-style-type: none"> 1. Review the “Daily Cooling 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, investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. 4. Record all observations (e.g., temperature readings, non-conformances, and corrective actions) on the “Daily Cooling Record,” including the date, the time, and initials. 	<p>Daily Cooling Record</p>

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<p>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.</p>	<p>CCP # 4 Metal detecting</p>	<p>Metal detector must detect 2.5 mm ferrous, 2.5 mm non-ferrous and 3.0 mm stainless steel test samples when the test samples are passed through the detector with the product. The metal detector must reject the product.</p>	<ol style="list-style-type: none"> 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 2.5 mm ferrous, 2.5 mm non-ferrous and 3.0 mm stainless steel, one at a time. Each check must include all three sample tests. 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. 	<p>A. When the metal detector fails to detect a metal test sample</p> <ol style="list-style-type: none"> 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. <p>B. When a product is rejected by the metal detector</p> <ol style="list-style-type: none"> 1. Inspect the product for the metal piece. <p>For above listed non-conformances (A & B) investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence.</p> <p>Record all non-conformances and corrective actions taken on the "Daily</p>	<ol style="list-style-type: none"> 1. At the end of each production day, review the "Daily Metal Detector Check Record" to ensure that it has been properly completed. 2. Once per week, ensure that the monitoring of the metal detector 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. 4. Record all observations (e.g., whether or not the detector is operating effectively, non-conformances, and corrective actions taken) on the "Daily Metal Detector Check Record," including the date, the time, 	<p>Daily Metal Detector Check Record</p>

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			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.	Metal Detector Check Record," including the date, the time, and initials.	and initials.	

Daily Nitrite Weighing Record

Critical Control Point # 1 (Biological, Chemical)

Critical Limits:

- 1) Nitrite content in the finished product must be between 180 ppm and 200 ppm
- 2) Nitrite content in the finished product must never be greater than 200 ppm

Calculate nitrite ppm in finished product using the formula below:

Sausage Mix (in kg) = **SM**

Preservative (in g) = **P**

Sodium Nitrite in Preservative (as a %) = **SNP**

Total Emulsion (in kg) = $SM + (P \times 10^{-3})$

Total Amount of Sodium Nitrite in Curing Salt (in g) = $P \times (SNP \div 100)$

Nitrite in Finished Product (in ppm) = $(\text{Total Amount of Sodium Nitrite in Curing Salt} \times 10^{-3} \times 10^6) \div \text{Total Emulsion}$

Date	2015/11/02				
Time	9:15				
Batch Number	1				
Sausage Mix Weight (kg)	114				
Curing Salt Weight (g)	350				
Total emulsion (kg)	114.350				
Sodium Nitrite in Curing Salt (%)	6.25				
Total Amount of Sodium Nitrite in Curing Salt (g)	21.875				
Nitrite in Finished Product (ppm)	191.30				
Initials	CC				
<u>Record non-conformance and corrective actions here:</u>					
Daily verification:				Date: 2015/11/02	
Weekly verification:				Date: 2015/11/09	

Daily Hot Smoking Record

Critical Control Point # 2 (Biological)

Critical Limits: The internal temperature of the product must be at least 71°C (159.8°F) for a minimum of 15 seconds.

Date	Time	Batch Number	Product Name	Product's Internal Temperature (Product selected from top, middle, and bottom racks of smoke house)			Initials
				Top	Middle	Bottom	
2015/11/02	12:00	1	Ready to eat sausage	77°C	77°C	76°C	CC
2015/11/02	13:04	2	Ready to eat sausage	68°C	74°C	79°C	CC
2015/11/02	16:00	3	Ready to eat sausage	77°C	79°C	75°C	CC

Record non-conformance and corrective actions here:

2015/11/02: Batch 2:

The internal temperature of the sausage on the top rack did not reach 71°C. The sausage was placed on hold and smoked again until the internal temperature reached 71° C. CC

Daily verification:

MN

Date: 2015/11/02

Weekly verification:

ML

Date: 2015/11/09

Daily Cooling Record

Critical Control Point # 3 (Biological)

Critical Limits: During cooling, the product’s internal temperature must not remain between 60°C (140°F) and 20°C (70°F) for more than 2 hours. The product’s internal temperature must not remain between 60°C (140°F) and 4°C (40°F) for more than 4 hours.

Production Date: 2015/11/02

Batch Number 1

Time	Top Tray Temperature	Middle Tray Temperature	Bottom Tray Temperature	Initials
12:30	66°C	66°C	64°C	CC
13:04	36°C	38°C	36°C	CC
14:05	19°C	18°C	16°C	CC
15:04	9°C	8°C	6°C	CC
16:06	1°C	2°C	1°C	CC
<u>Record non-conformance and corrective actions here:</u>				
Daily verification: MN			Date: 2015/11/02	
Weekly verification: ML			Date: 2015/11/09	

Daily Metal Detector Check Record

Critical Control Point # 4 (Physical)

Critical Limits: Metal detector must detect 2.5 mm ferrous, 2.5 mm non-ferrous, and 3.0 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	2.5 mm Ferrous	2.5 mm Non-ferrous	3.0 mm Stainless Steel	Initials
2015/11/02	12:00 (start)	1	Ready to eat sausage	✓	✓	✓	SM
	13:05	1	Ready to eat sausage	✓	✓	✓	SM
	14:07	1	Ready to eat sausage	✓	✓	✓	SM
	15:37	1	Ready to eat sausage	✓	✓	✓	SM
	16:04	1	Ready to eat sausage	✓	✓	✓	SM
	17:05	1	Ready to eat sausage	✓	✓	✓	SM
	17:44 (finish)	1	Ready to eat sausage	✓	✓	✓	SM
<p><u>Record non-conformance and corrective actions here:</u></p> <p>At 16:20, one package was rejected. The product was screened for a metal piece. A small piece (5 mm in size) of metal was found. Upon investigation, it appears that it came from one of the damaged belts. The belt was immediately removed and replaced with a new belt. SM</p>							
Daily verification:		MN			Date: 2015/11/02		
Weekly verification:		ML			Date: 2015/11/09		

