

Applying HACCP to the Food service and catering FCP clip ons of traditional sushi and Chinese-style duck

1 Introduction

MPI provides an explanation on how the Hazard Analysis and Critical Control Point (HACCP) are applied for each clip on for the Food service and catering FCP.

2 Purpose

This document explains how HACCP has been applied to the clip ons for traditional sushi and Chinese style roast duck.

3 Approach to HACCP

3.1 Practices required prior to HACCP application

Before reviewing the HACCP processes within an operation, food business operators should have a good understanding of the Management and Basics sections of the OTP FCP. These sections cover the principles of good operating practice and provide the generic overarching information for applying HACCP.

3.2 Specific information required prior to HACCP application

The food service and catering OTP FCP and the specific clip ons for traditional sushi and Chinese style roast duck provide the generic overarching information for this HACCP application.

3.2.1 Scope

The food service and catering OTP FCP provides information on the range of products, processes and practices that are common in those sectors. The processes for traditional sushi and Chinese style roast duck have been selected to illustrate the application of HACCP.

3.2.2 Requirements

It is intended that all regulatory requirements will be covered under the proposed new Food Act, and subordinate legislation. Proposed regulatory limits applicable to these clip ons have been identified.

Table 1: Regulatory limits applicable to Sushi and Chinese style roast duck

Process Step	Hazard of concern	Regulatory limits (interim parameters)	
Receipt and use of RTE seafood	<i>Listeria monocytogenes</i>	0 in 25gm	
Acidifying sushi rice	<i>Bacillus cereus</i>	pH ≤ 4.8	
Cooking of duck	<i>Campylobacter jejuni</i>	Temp (°C)	Time(min)
		65	10
		70	2
		75	0
		at thickest part of poultry (slowest heating part)	
Reheating	Various	≥ 60°C (piping hot)	
Cooling	Various	60°C to 21°C in 2 hours	
		21°C to 4°C in 4 hours	
Chilling	Various	≤ 4°C	

3.3 Hazard Identification and Analysis

Hazard identification and analysis has been applied to the direct process. Specific process steps detailed within the OTP FCP have been considered (e.g. cooking, hot holding, cooling, chilling/freezing) when selecting examples. Only hazards that are reasonably likely to occur, and their control measures (where available) have been identified. Most of this information has been sourced from the MPI hazard database. <http://www.foodsafety.govt.nz/registers-lists/hazards/index.htm>

Other sources are referenced in this document.

Note: foods and ingredients to be considered are listed under **Food Types** in the Hazard Database. See Appendix 1.

3.4 CCP Determination

A decision table has been used to determine when a Critical Control Point (CCP) is necessary. A 'Yes' answer to two key questions defines a process step as a CCP (see examples – Tables 2, 3)

The following examples are simplified presentations of the key steps based on a generic process.

Process flow diagram for traditional Nigiri or Sushi

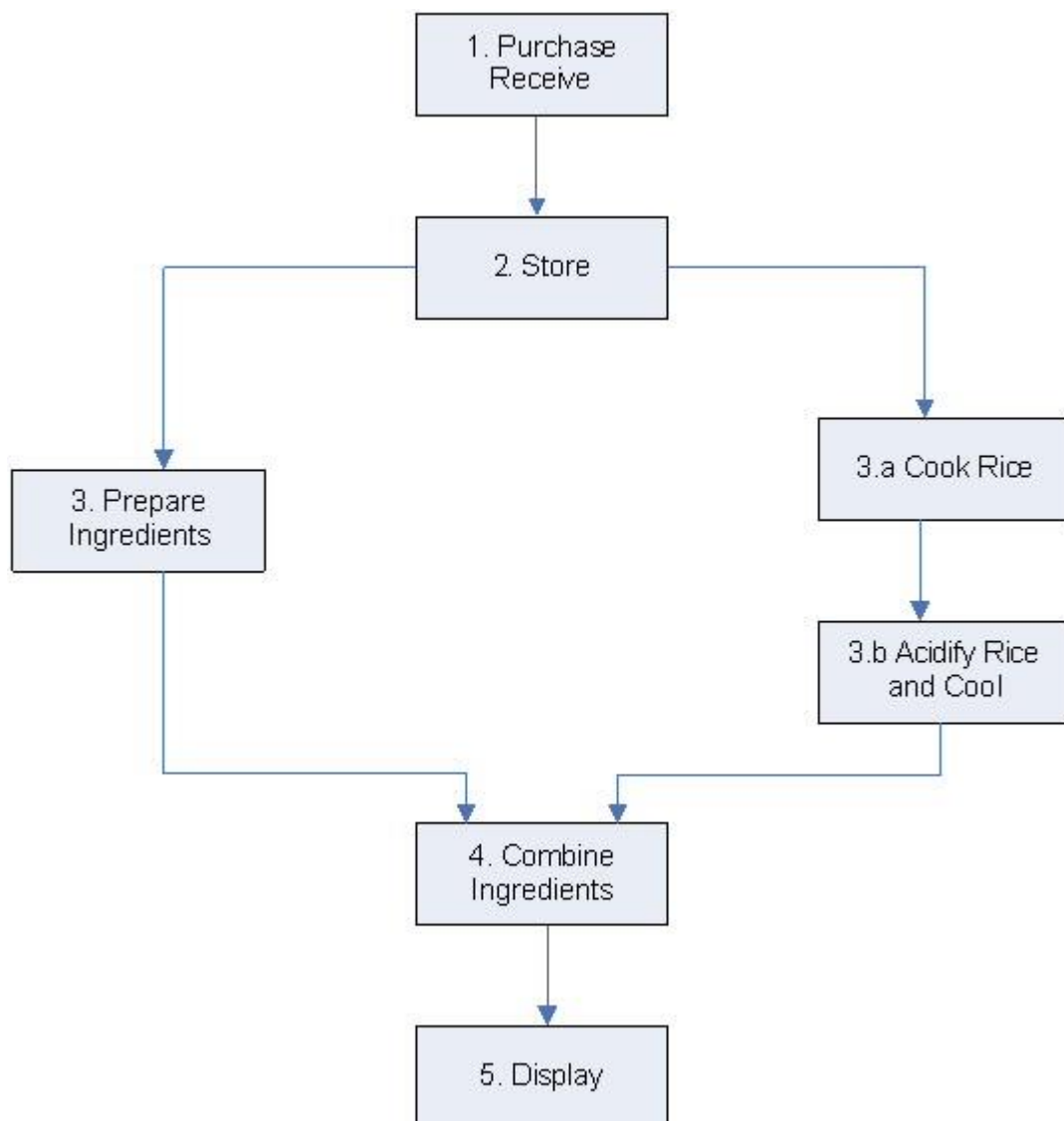


Table 2: Hazard ID and analysis/ CCP determination for Traditional sushi

Process Step	Input	Hazard (with justification) ¹²	Q1. Is there a Regulatory limit or Operator-defined limit? Yes: Go to Q2. No: Step is not a CCP. Consider need for other control measures in GOP.	Q2. Is a control measure(s) essential to achieve the limit from Q1? Yes: Step is a CCP. No: Step is not a CCP. Consider need for other control measures in GOP	Impact of process step on existing hazards / Introduction of new hazards	Control measures to prevent / minimise or eliminate hazard (Essential ones are identified in bold)	FCP reference
1. Purchase /receive	Raw salmon	<i>Listeria monocytogenes</i> Allergens (all seafood)	Yes	No	<ul style="list-style-type: none"> • Good Operating Practice. • Growth of harmful bacteria if food temperature gets too high during delivery. 	<ul style="list-style-type: none"> • Check regulatory limit as per the <i>Listeria monocytogenes</i> monitoring programme. • Approved Supplier good operating practices • Vegetable supplier good operating practices • Delivery requirements, food temperature checks. 	<ul style="list-style-type: none"> • Purchasing and receiving goods
	Cooked crustacea	Allergens					
	Nori	None					
	Sugar	None					
	Vinegar	None					
	Ginger	None					
	Wasabi	None					
	Cooked chicken	None					
	Fresh vegetables (carrots, cucumber)	None					
	Avocado	None					
	Cooked Rice	<i>Bacillus cereus</i>					
2. Store	RTE Seafood, Cooked poultry, fresh vegetables and rice	<i>Listeria monocytogenes</i> Allergens <i>Bacillus cereus</i>	Yes	No	<ul style="list-style-type: none"> • Growth of harmful bacteria if food temperature gets too high during storage. 	<ul style="list-style-type: none"> • Effective temperature control. • Readily perishable food stored at 4°C or colder. • Use within use by date • Ingredients covered and/ or protected 	<ul style="list-style-type: none"> • Storage, Chilled/ frozen food storage

Process Step	Input	Hazard (with justification) ¹²	Q1. Is there a Regulatory limit or Operator-defined limit? Yes: Go to Q2. No: Step is not a CCP. Consider need for other control measures in GOP.	Q2. Is a control measure(s) essential to achieve the limit from Q1? Yes: Step is a CCP. No: Step is not a CCP. Consider need for other control measures in GOP	Impact of process step on existing hazards / Introduction of new hazards	Control measures to prevent / minimise or eliminate hazard (Essential ones are identified in bold)	FCP reference
3. Prepare ingredients	RTE Seafood, Cooked poultry, fresh vegetables	<i>Listeria monocytogenes</i> Allergens	No	No		<ul style="list-style-type: none"> Handling to prevent cross contamination between raw and cooked foods. 	<ul style="list-style-type: none"> Preparation
3a. Cook Rice	Rice	<i>Bacillus cereus</i>	No	No	<ul style="list-style-type: none"> Proper cooking reduces harmful bacteria. 		<ul style="list-style-type: none"> GOP when handling food particularly cooked and RTE.
3b. Acidify rice and cool	Acidifying cooked Rice	<i>Bacillus cereus</i> spores	Yes	Yes CCP 1	<ul style="list-style-type: none"> Adding vinegar to the rice makes it acidic and helps stop harmful microbes from growing in the rice and on other ingredients. E.g. <i>Bacillus cereus</i> may germinate and multiply. 	<ul style="list-style-type: none"> Compliance to established pH is 4.8 or lower Handling to prevent cross contamination between raw and cooked foods. Cooling is done in accordance with specified time / temperature parameters. 60°C to 21°C in 2 hours, 21°C to 15°C in another 4 hours. 	<ul style="list-style-type: none"> Preparation Sushi (nigiri pieces and nori rolls)
4. Combine ingredients	RTE seafood, cooked rice, cooked	See step 1.	No	No	<ul style="list-style-type: none"> Growth of harmful bacteria if food temperature gets too 	<ul style="list-style-type: none"> Handling to prevent cross contamination 	<ul style="list-style-type: none"> Preparation

Process Step	Input	Hazard (with justification) ¹²	Q1. Is there a Regulatory limit or Operator-defined limit? Yes: Go to Q2. No: Step is not a CCP. Consider need for other control measures in GOP.	Q2. Is a control measure(s) essential to achieve the limit from Q1? Yes: Step is a CCP. No: Step is not a CCP. Consider need for other control measures in GOP	Impact of process step on existing hazards / Introduction of new hazards	Control measures to prevent / minimise or eliminate hazard (Essential ones are identified in bold)	FCP reference
	poultry, other ingredients				high during preparation.	between raw and cooked foods.	
5. Display	Traditional Sushi and Nigiri	See step 1.	No	No	<ul style="list-style-type: none"> Contamination of unprotected food 	<ul style="list-style-type: none"> Food is protected from contamination. Food is hygienically handled. Food held no longer than prescribed times and temperatures. 	<ul style="list-style-type: none"> Sushi (nigiri pieces and nori rolls) Display and self-serve

¹ Source of hazard information: Hazard Database

² Hazard database where is the case, otherwise state justification

Process flow diagram for Chinese style roast duck.

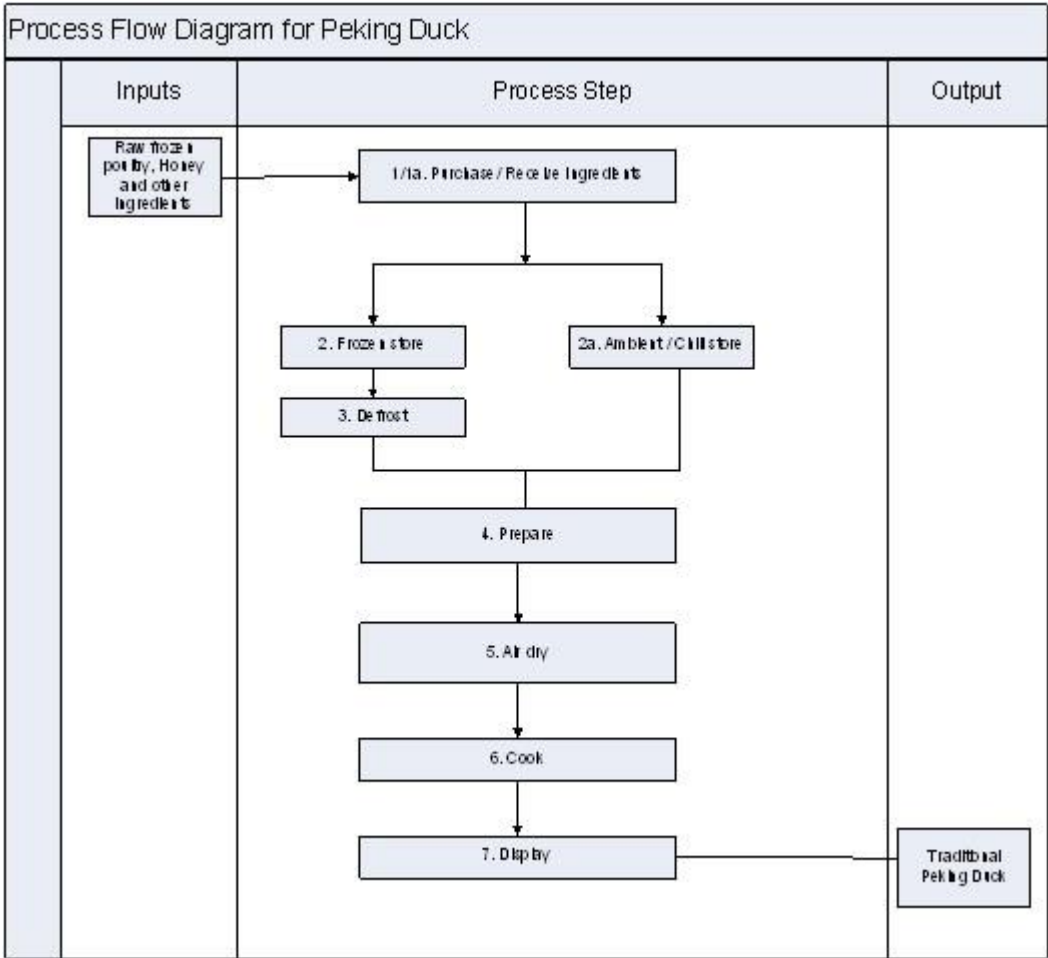


Table 3: Hazard ID and analysis/ CCP determination for Chinese style roast duck

Process Step	Input	Hazard (with justification) ³	Q1. Is there a Regulatory limit or Operator-defined limit? Yes: Go to Q2. No: Step is not a CCP. Consider need for other control measures in GOP.	Q2. Is a control measure(s) essential to achieve the limit from Q1? Yes: Step is a CCP. No: Step is not a CCP. Consider need for other control measures in GOP	Impact of process step on existing hazards / Introduction of new hazards	Control measures to prevent / minimise or eliminate hazard (Essential ones are identified in bold)	FCP Section Reference
1. Purchase /receive	Raw frozen Duck, Honey	<i>Campylobacter jejuni</i> <i>Listeria monocytogenes</i> <i>Salmonella</i> spp <i>Clostridium perfringens</i> Environmental chemical contaminants Antibiotics	No	No	<ul style="list-style-type: none"> • Growth of harmful bacteria if food temperature gets too high during delivery. 	<ul style="list-style-type: none"> • Approved Supplier good operating practice • Delivery requirements food temperature checks. • Visual inspection 	<ul style="list-style-type: none"> • Purchasing and Receiving Goods
2. Store	Raw frozen Duck / Chilled store	See step 1	No	No	<ul style="list-style-type: none"> • Growth of harmful bacteria if food temperature gets too high. 	<ul style="list-style-type: none"> • Effective temperature control. • Stored frozen solid 	<ul style="list-style-type: none"> • Readily Perishable Food • Storage • Chilled/Frozen Storage
3. Defrost	Raw frozen Duck	See step 1.	No	No	<ul style="list-style-type: none"> • Growth of harmful bacteria if food temperature gets too high during defrosting. 	<ul style="list-style-type: none"> • Thawing times and temperatures checked. • Tempering done in chillers. • Food thawed throughout. • Cross contamination from poultry juices prevented. 	<ul style="list-style-type: none"> • Defrosting Frozen Food
4. Prepare / Blanch	Raw Duck	See step 1.	No	No	<ul style="list-style-type: none"> • Growth of harmful bacteria if food 	<ul style="list-style-type: none"> • Handling to prevent cross contamination 	<ul style="list-style-type: none"> • Readily Perishable Food

Process Step	Input	Hazard (with justification) ³	Q1. Is there a Regulatory limit or Operator-defined limit? Yes: Go to Q2. No: Step is not a CCP. Consider need for other control measures in GOP.	Q2. Is a control measure(s) essential to achieve the limit from Q1? Yes: Step is a CCP. No: Step is not a CCP. Consider need for other control measures in GOP	Impact of process step on existing hazards / Introduction of new hazards	Control measures to prevent / minimise or eliminate hazard (Essential ones are identified in bold)	FCP Section Reference
					temperature gets too high during preparation.	between raw and cooked foods. • Cross contamination of other food is minimised. • Correct procedures followed for dipping duck in boiling water and vinegar solution	• Preparation • Chinese style roast duck
5. Air Dry	Raw Duck	<i>Campylobacter jejuni</i> <i>Listeria monocytogenes</i> <i>Salmonella</i> spp <i>Clostridium perfringens</i>	No	No	• After 6 hours of hanging, the growth rate of microbes increases. If temperature exceeds 25°C some microbes will release toxins that will not be destroyed during roasting.	• Check internal temperature at start and halfway through drying process. Duck should not exceed 25°C throughout drying process.	• Chinese style roast duck
6. Cook	Raw Duck	See step 1.	Yes	Yes CCP 1	• Proper cooking reduces harmful bacteria. • Harmful bacteria could survive due to inadequate cooking.	• Compliance to established cooking parameters for time and internal food temperature. • Handling to prevent cross contamination between raw and cooked foods.	• Cooking poultry • Checking poultry is cooked • Poultry Cooking time/ temperature settings • Chinese style roast duck

Process Step	Input	Hazard (with justification) ³	Q1. Is there a Regulatory limit or Operator-defined limit? Yes: Go to Q2. No: Step is not a CCP. Consider need for other control measures in GOP.	Q2. Is a control measure(s) essential to achieve the limit from Q1? Yes: Step is a CCP. No: Step is not a CCP. Consider need for other control measures in GOP	Impact of process step on existing hazards / Introduction of new hazards	Control measures to prevent / minimise or eliminate hazard (Essential ones are identified in bold)	FCP Section Reference
7. Display	Peking Duck	Carried over from step 1 and 1a.	No	No	<ul style="list-style-type: none"> Recontamination of unprotected food. 	<ul style="list-style-type: none"> Food is protected from contamination. Food is hygienically handled. Ducks are on display for no longer than 22 hours. Self-service displays appropriately supervised. 	<ul style="list-style-type: none"> Display and Self Service Display for Retail Sale Chinese style roast duck

³ Source of hazard information: Hazard Database

3.5 Critical Limits

CCPs identified in **Process 1 and 2:**

CCP	Hazard of concern	Critical limits (interim parameters)		Section in OTP FCP
Acidifying rice	<i>Bacillus cereus</i>	Compliance to established pH is 4.8 or lower		Sushi (nigiri pieces and nori rolls)
Cooking duck	<i>Campylobacter jejuni</i>	Temp (°C)	Time (min)	Cooking Poultry Poultry Cooking Time/ Temperature Settings
	<i>Listeria</i>	65	10	
	<i>monocytogenes</i>	70	2	
	<i>Salmonella</i> spp	75	0	
		at slowest heating part		

3.6 CCP Monitoring

MPI has identified options for expected CCP monitoring within the OTP FCP for Food Service and Catering. The details can be found in the following sections of the OTP FCP:

- CCP – Acidifying rice – Section: Sushi (nigiri pieces and nori rolls)
- CCP - Cooking duck – Sections: Cooking Poultry, Poultry Cooking Time/Temperature Settings, Checking Poultry is Cooked

3.7 CCP Corrective Action

MPI has documented options for corrective action for each CCP within the OTP FCP for Food Service and Catering. The details can be found in the following sections of the OTP FCP:

- CCP – Acidifying rice – Section: Sushi (nigiri pieces and nori rolls)
- CCP - Cooking duck – Sections: Cooking Poultry, Poultry Cooking Time/Temperature Settings

3.8 Business Operator Verification – HACCP

MPI has documented requirements/options for Business Operator verification activities related to HACCP application within the OTP FCP for Food Service and Catering. The details can be found in the following sections of the OTP FCP:

- CCP – Cooking duck – Section: Cooking Poultry
- Acidifying rice. Section: Sushi (nigiri pieces and nori rolls)
- Air drying duck. Section: Chinese style roast duck
- Calibration of thermometer – Section: Diary
- Product/process review – Section: Introduction
- Overarching FCP review – Section: Introduction

3.9 HACCP documentation & recordkeeping

MPI will maintain, review and update this documentation for the generic HACCP application for the OTP FCP for Food Service and Catering.

3.9.1 Records

MPI has detailed its expectations for recordkeeping for CCP monitoring, CCP corrective action and Business Operator verification of HACCP within the OPT FCP for Food Service and Catering and the OTP FCP Diary. See sections: Management Details, Records, Diary.

4 References

Food Control Plan – Food Service and Catering - <https://www.mpi.govt.nz/food-safety/food-act-2014/food-control-plans/>

Hazard Database - <http://www.foodsafety.govt.nz/registers-lists/hazards/index.htm>

Joint Food Standards Code - <http://www.foodstandards.gov.au/code/Pages/default.aspx>

MPI Guide to applying HACCP principles (chapter for Food Control Plan Manual)

Microbiological research: Food Safety - Victorian Government Health Information, Australia
<http://www.health.vic.gov.au/foodsafety/research/microbiological.htm>

Food Safety program Template for Food Service and Retail Businesses (edition 1.1) Supplement B
Sushi http://www.health.vic.gov.au/foodsafety/downloads/fsp_supp_sushi.pdf

FSANZ Safe Food Handling in Australian Food Businesses – Knowledge and Practices Nov 2008

Appendix 1.

Hazard Identification for Traditional Sushi

Inputs	Hazard database search?	Biological Hazard	Chemical Hazard	Physical Hazard
Nori	None			
Rice	Yes	Spore formers - <i>Bacillus cereus</i>		
Sugar	None			
Vinegar	None			
Ginger	None			
Wasabi	None			
Cooked Chicken	None			
Raw Salmon	Yes	<i>Listeria monocytogenes</i>	Allergens	
RTE Seafood		<i>Listeria monocytogenes</i>		
Crab meat			Allergens	
Prawns		<i>Listeria monocytogenes</i>	Allergens	
Avocado	None			
Cucumber	None			

Hazard Identification for Chinese style duck

Inputs	Hazard database search	Biological Hazard	Chemical Hazard	Physical Hazard
Duck	Yes	<i>Psychotrophs</i> - <i>Listeria monocytogenes</i> <i>Proteobacteria</i> - <i>Campylobacter jejuni</i> <i>Enterobacteriaceae</i> - <i>Salmonella</i> Spore formers - <i>Clostridium perfringens</i>	Environmental chemical contaminants Antibiotics	
Honey (optional ingredient)	Yes Compliance guide to the Food (Tutin in Honey) Standard 2008 Supplier good operating practices		Tutin	
Sherry	None			
Vinegar	None			
Cornstarch	None			
Hoisin Sauce	None			
Sesame Oil	None			