



Name of business:

Food Control Plan

Food Service and Food Retail

Template – March 2017

Specialist Retail – Fishmonger Safe

For retail businesses that process and handle fish and fish products.

Add to the food service and retail *Basics Pack*.

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Food additives in fish and fish products

Goal

To ensure that only permitted food additives are used to make meat products.

Act requirements:

- Food must be safe and suitable.

Why?

- Herbs, spices and other ingredients may be contaminated with harmful microorganisms.
- Using a validated and tried and tested recipe helps make a safe product.
- The Australia New Zealand Food Standards Code (the Code) prescribes certain food additives and their amounts that can be added to meat, poultry, game and other products.
- If a non-permitted additive is in a food, or the amount of a permitted food additive exceeds the limit prescribed in the Code, safe limits may be exceeded.

How this is done

All ingredients must come from reputable suppliers and must be safe for use when making products – see *Purchasing and receiving food*.

All ingredients and food additives used must be permitted for use by, and comply with, the Code – see also *Food composition*.

Check the Code for the requirements for the products that you make or sell at: <http://www.foodstandards.govt.nz/code/Pages/Food-Standards-Code-from-1-March-2016.aspx>

Information about permitted food additives in fish and fish products is provided on the next page.

What if there is a problem?

If a non-permitted food additive is in food, throw the food away.

If too much of an additive is present in the finished product, the product must be thrown away unless it may be reworked using a process shown to make the product safe for use.

Review process to identify how this happened and work out how to prevent it happening again.

Write it down

Keep a record of your calculations of food additives to confirm that your products meet requirements of the Code – either in the Diary or with your recipes.

You must write down (e.g. in the Diary) what you did to deal with a problem, what you did with the food and what action you took to prevent this happening again.

Food additives

The information on this page is provided to help with meeting food additive requirements of the Code.

Permitted food additives in meat and meat products

Standard 1.3.1 is extensive and examples include:

Nitrites/Nitrates

- The total of nitrates and nitrites (calculated as sodium nitrite) permitted in cured meat, dried meat, slow dried cured meat, processed comminuted meat and poultry and game products must not exceed 125 mg/kg (parts per million) in the finished product.
- The total of nitrates and nitrites (calculated as sodium nitrite) permitted in fermented, uncooked processed comminuted meat products must not exceed 500 mg/kg (parts per million) in the finished product.

See *Brining and pickling meat* for an example of calculating nitrite in finished product.

Sulphur dioxide

Sausage and sausage meat, and processed comminuted meat, poultry and game products must contain less than 500mg/kg (parts per million) sulphur dioxide and sodium and potassium sulphites (calculated as sulphur dioxide).

Sulphur dioxide and sulphites are not permitted to be applied to raw, unprocessed meat.

Other permitted food additives

The Code places limits on the amount of other food additives that can be in products, such as sorbic acid and sorbates.

All ingredients and additives used must be permitted for use by, and comply with, the Code – see also *Food composition - general*.

Goal

To ensure that fish and fish products meet microbiological and compositional requirements.

Act requirements:

- Food must be safe and suitable.

Why?

- The Australia and New Zealand Food Standards Code (the Code) sets levels for the maximum permissible number of harmful microbes that may be present in meat (including fish) products.
- Fish products where levels aren't set in the Code may still contain harmful organisms if they aren't adequately processed and handled.

How this is done**Microbiological requirements of fish and fish products****Levels of harmful microbes in fish and fish products**

Herbs, spices or premixes used in products are sourced from suppliers who can provide information to show that they do not contain harmful organisms in amounts that may affect the safety of the food.

A check is made that fish and fish products sold comply with microbiological requirements of the Code.

The Code Standard 1.6.1 sets maximum permissible levels of harmful organisms that may be present in certain fish products.

Other fish products that are not included in Standard 1.6.1 may also support the growth of harmful organisms. Guidance on microbiological levels for harmful organisms that may be found in products such as raw fish and shellfish is at:

http://www.foodsafety.govt.nz/elibrary/industry/Microbiological_Reference-Guide_Assess.pdf

Further information about what a business needs to do to keep *Listeria monocytogenes* out of RTE food is in the Listeria procedure and in other procedures throughout the plan.

Check the Code for the requirements for the products that you make or sell at: <http://www.foodstandards.govt.nz/code/Pages/Food-Standards-Code-from-1-March-2016.aspx>

Examples of limits for harmful microbes in fish and fish products are provided on the next page.

What if there is a problem?

If product that doesn't meet microbiological limits it must not be used. It may be thrown away, returned to the supplier or reworked in a way that is approved by a Food Safety Officer.

Review practices to identify how this happened and take action to prevent it happening again.

Write it down

You must write down (e.g. in the Diary) what you did to deal with a problem, what you did with the food and what action you took to prevent this happening again.

Keep a record to show how your products meet microbiological requirements of the Code either (e.g. in the Diary) or with your recipes.

Limits for harmful microbes

The information on this page is provided to help with meeting food additive requirements of the Code.

The Code Standard 1.6.1 sets maximum permissible levels of harmful organisms that may be present in fish and fish products from a minimum of five sample units from one lot of the product:

Food	Microbiological limit
Cooked crustacea	<p><i>Coagulase-positive staphylococci/g:</i></p> <p>up to 100 organisms is acceptable in any sample;</p> <p>100-1000 organisms is acceptable in two samples only. If in more than two samples the lot is rejected;</p> <p>More than 1000 organisms in one sample and lot rejected.</p> <p><i>Salmonella/25g:</i></p> <p>nil present in 5 samples from lot.</p> <p>Standard plate count/g:</p> <p>Up to 100,000 organisms is acceptable in any sample;</p> <p>100,000 to 1 million organisms is acceptable in two samples only. If in more than two samples the lot rejected;</p> <p>More than 1 million organisms in one sample and lot rejected.</p>
Raw crustacea	<p><i>Coagulase-positive staphylococci/g:</i></p> <p>up to 100 organisms is acceptable in any sample;</p> <p>100-1000 organisms is acceptable in two samples only. If in more than two samples the lot is rejected;</p> <p>More than 1000 organisms in one sample and the lot is rejected.</p> <p><i>Salmonella/25g:</i></p> <p>nil present in 5 samples from lot</p> <p>Standard plate count/g:</p> <p>Up to 500,000 organisms is acceptable in any sample;</p> <p>500,000 to 5 million organisms is acceptable in two samples only. If in more than two samples the lot is rejected;</p> <p>More than 5 million organisms in one sample and the lot is rejected.</p>
Bivalve molluscs other than scallops	<p><i>Eschericia coli/g:</i></p> <p>up to 2.3 organisms acceptable in any sample;</p> <p>2.3 – 7 organisms is acceptable in one sample only. If in more than one sample the lot is rejected;</p> <p>More than 7 organisms in one sample and the lot is rejected.</p>
Ready-to-eat food in which growth of <i>Listeria monocytogenes</i> can occur	<p><i>Listeria monocytogenes/25g:</i></p> <p>nil present in 5 samples from the lot.</p>
Ready-to-eat food in which growth of <i>Listeria monocytogenes</i> will not occur	<p><i>Listeria monocytogenes/g</i></p> <p>Up to 100 colony forming organisms is acceptable in any sample (5 samples from lot).</p>

Composition of fish and fish products

Goal

To ensure that fish and fish products meet compositional requirements.

Act requirements:

- Food must be safe and suitable.

Why?

- The Australia New Zealand Food Standards Code (the Code) applies definitions, composition and labelling requirements to fish and fish products.

How this is done

Compositional requirements for fish and fish products

Carbon monoxide must not be used in the processing of fish if its use results in a change to, or fixes, the colour of the flesh of the fish.

A check must be made that fish and fish products sold comply with compositional requirements of the Code – see also *Food composition – general*.

The Code Standard 2.2.3 includes definitions, compositional and specific labelling requirements for fish and fish products. Check the Code for the requirements for the products that you make or sell at: <http://www.foodstandards.govt.nz/code/Pages/Food-Standards-Code-from-1-March-2016>.

Examples of composition requirements for fish and fish products are provided on the next page.

What if there is a problem?

Products that don't meet compositional requirements but which are safe to eat may be reworked where the process is shown to make the product safe for use.

Review practices to identify how this happened and work out how to prevent it happening again.

Write it down

Keep a record of your calculations to confirm that your products meet compositional requirements of the Code – either in the Diary or with your recipes.

Write down (e.g. in the Diary) what you did to deal with a problem, what you did with the food and what action you took to prevent this happening again.

Do I need to have a recipe written down?

Writing down and following a tried and tested recipe is a way to make a consistently safe product that meets compositional and other requirements each time it is made. The recipe can also be used to check what should have been added to each batch against the batch records showing what was actually added.

Following a recipe and keeping a record of what went into each batch can also help you to show how you consistently meet requirements in the Act and the Code.

If you change anything in a tried and tested recipe you may affect safety and composition of the end product. You will need to check-validate – that any change to the recipe, ingredients or process continues to make a safe and suitable food.

Composition

The information on this page is provided to help with meeting food compositional requirements.

Compositional requirements for fish and fish products

The Code Standard 2.2.3 includes definitions, compositional and specific labelling requirements for fish and fish products, including:

- the level of histamine in fish or fish products must not exceed 200mg/kg;
- a declaration must be made to purchasers where raw fish is formed or joined in the semblance of a cut or fillet of fish using a binding system that doesn't involve heat. Cooking instructions must be provided to the purchaser;
- fish is defined as any cold-blooded aquatic vertebrate and invertebrate including shellfish.

The Code doesn't define specific names for fish. Guidance on fish names is at:

<http://www.foodsafety.govt.nz/elibrary/industry/approved-fish-names/>

The Code Standard 1.3.3 prohibits the use of carbon monoxide in the processing of fish where its use results in a change to or fixes the colour of the flesh of the fish.

Making and using ice

Goal

To ensure that ice is made, used and sold hygienically.

Act requirements:

- Food must be processed and handled in ways that minimize the contamination or deterioration of food and prevent food containing substances that are unexpected or unreasonable.
- There must be procedures for controlling hazards at each production and processing and handling step where it is essential to eliminate or reduce a hazard to an acceptable level.

Why?

- Ice can become contaminated from hands, contact surfaces, chemicals, pests and other foreign objects.
- A fresh water supply to an ice-making machine that is not of drinkable quality may contain harmful microbes that could make customers ill.
- Seawater used to make ice must be free from harmful organisms that could contaminate seafood.

How this is done

Surfaces and equipment used for preparing ice must be in sound condition and clean before use. Surfaces in contact with ice must be sanitised before use – see *Cleaning and Equipment, packaging and other items in contact with food*.

Good hand hygiene and personal hygiene practices must be followed – see *Hand hygiene* and *Personal hygiene*.

Ice making equipment

Equipment making ice must use a clean water supply to make cubes or blocks of ice. The ice making equipment must be located or sited to:

- prevent ice from becoming contaminated;
- enable easy cleaning of equipment and surrounding area; and
- prevent harbourage for pests.

Water

Water for making ice must be clean and meet requirements for water – see *Water*.

Seawater used for making ice must not contain any *E. coli* or other faecal coliforms.

Maintenance and use

During use:

- all parts of the ice making equipment that come into contact with water or ice must be regularly cleaned and sanitised – moulds must not be allowed to grow particularly in areas where condensation occurs (which can often be hard-to-reach places to clean);
- equipment location must be kept clean and hygienic;
- shovels, axes, scoops, containers and other equipment that comes into contact with ice must be regularly cleaned and sanitised;
- equipment/utensils used with ice must be stored hygienically when not being used in ways that prevent contamination;
- ice must be protected from contamination and handled and stored hygienically;
- water used to make ice must be maintained so that it is clean.

Ice from suppliers

- Delivered blocks/containers of ice must be checked for signs of contamination.
- Bagged ice must be delivered in clean, intact bags.
- Ice storage containers (including freezers) must be clean.

How this is done

Using ice

- Ice that has been in contact with non-ready-to-eat food must not be sold, or used with other foods.

What if there is a problem?

Visibly contaminated ice received from suppliers is rejected or only used where it will not come into contact with food.

Ice spilled from broken/split bags/containers is not sold/used.

If cleaning or handling procedures aren't followed find out why and take action to stop it happening again.

Retrain staff if necessary.

Write it down

You must write down in the *Cleaning schedule* the surfaces and equipment used, when they need to be cleaned (and sanitised); how this is done, and by whom.

You must write down (e.g. in the *Diary*) any problems that occurred and what you did to prevent them from happening again.

Live shellfish

Goal

To ensure that live shellfish, e.g. mussels, are handled in a safe and hygienic way.

Act requirements:

- Food must be processed and handled in ways that minimise the contamination or deterioration of food and protects food from substances that are unexpected or unreasonable.
- There must be procedures for controlling hazards at each production and processing and handling step where it is essential to eliminate or reduce a hazard to an acceptable level.

Why?

- Shellfish that do not come from licensed farms can contain harmful microbes.
- Harmful microbes can contaminate live shellfish through unclean people, equipment and utensils after harvesting.
- Harmful microbes can grow on shellfish kept too warm.
- Harmful microbes from dead or damaged shellfish can contaminate live ones.
- Chemicals used on food surfaces, and transported or stored with live shellfish can contaminate them.

How this is done

Live shellfish must be received with information that includes the marine farm number, the harvester and date of harvest.

If harvested in summer (December to March) they should be chilled within 20 hours of harvesting; during other months chilling should be within 24 hours of harvesting.

Shellfish must be stored at a temperature of between 5°C and 10°C and kept moist.

Temperatures below 5°C can kill live shellfish.

Contact with fresh water (including ice) and damaging their shells can also kill shellfish.

- equipment used for handling live shellfish must be checked that it is clean before use. Display units must be cleaned and maintained according to manufacturers instructions – see *Cleaning and Maintenance*;
- good hand hygiene and personal hygiene practices must be followed when handling live shellfish – see *Hand hygiene* and *Personal hygiene*.

Receiving live shellfish

Live shellfish received must be (identify which apply):

chilled no later than 20 hours after harvesting in summer; or

chilled no later than 24 hours after harvesting in winter; and

chilled to a temperature of 10°C; and

are received with the harvesting declaration.

Live shellfish must be checked for mud, stones and other foreign matter on arrival and action taken to keep foreign matter out of food.

Storage

Live shellfish must be:

- placed in a chiller and stored at no more than 10°C;
- protected from drying-out (e.g. kept away from high air-flows);
- stored so that they do not come into contact with fresh water/ice;
- stored so that any fluids or liquids can drain away; and
- handled carefully to prevent damage to shells.

How this is done

Display and sale

Live shellfish display units must:

- be operated in accordance with manufacturers' instructions;
- maintain a salinity of 3.3%;
- have water changed regularly to remove material flushed from shellfish and maintain water quality;

Live shellfish display units must be checked regularly:

- that temperature is no more than 10°C;
- that any dead or broken shellfish removed;
- are only cleaned using chemicals approved by the unit manufacturer.

What if there is a problem?

Live shellfish must not be accepted:

- if harvesting information is not provided;
- if there is gross contamination;
- if shellfish have been contaminated during transport;
- if there is a high proportion of dead or damaged shellfish.

If shellfish are damaged during handling, review staff training and supervise handling practices.

Dead and damaged shellfish must not be sold.

Write it down

You must write down in the *Cleaning* schedule the surfaces and equipment used, when they need to be cleaned (and sanitised); how this is done, and by whom.

You must write down (e.g. in the *Diary*):

- what you did if you found a high proportion of dead shellfish in a batch;
- temperature checks made of stored and displayed live shellfish; and
- what was done if storage or display temperatures are too warm.

File the harvest information provided with each delivery so that it is accessible in the event of a traceability or recall issue.



Shellfish – dead or alive?

Uncooked shellfish with slightly opened shells that close when tapped or knocked are alive.

Uncooked, wide-open shells that do not close when tapped are dead. The flesh may also be dry and smell 'off.' These must be thrown away.

Calculating salinity

100% salinity is defined as 1 gram of salt per millilitre of water (one thousand parts per thousand)

A 3.3% solution would be 33 grams dissolved in a litre (1000 mL) of water

Preparing raw seafood

Goal

To prevent cross-contamination between raw seafood and other foods.

To hygienically prepare food and prevent microbes that may be present in food from multiplying to harmful numbers.

Act requirements:

- Food must be processed and handled in ways that minimise the contamination or deterioration of food and prevent food containing substances that are unexpected or unreasonable.
- There must be procedures for controlling hazards at each production and processing and handling step where it is essential to eliminate or reduce a hazard to an acceptable level.

Why?

- Harmful microbes that can cause foodborne illnesses will grow at temperatures between 5°C to 60°C (the temperature danger zone).
- Harmful microbes can contaminate food through unclean people, other foods, equipment and utensils.
- Food contaminated by chemicals can cause illness.
- Objects can fall into uncovered food affecting its suitability and/or safety.
- The Australia New Zealand Food Standards Code (the Code) places requirements on the composition of meat products.

How this is done

Situations where cross-contamination could occur between raw seafood and ready-to-eat (RTE) foods must be identified at the business – see *Preventing cross-contamination, Food Allergens*.

Where possible, surfaces, equipment and places used for preparing raw foods are different to those used for ready-to-eat food – see *Potentially hazardous foods, Chilled and frozen food storage*.

Surfaces and equipment used for preparing food must be in sound condition and clean before use. Surfaces in contact with ready-to-eat foods must be sanitised before use – see *Cleaning and Equipment, packaging and other items in contact with food*.

Good hand hygiene and personal hygiene practices must be followed – see *Hand hygiene and Personal hygiene*.

All fish must come from a reputable source (e.g. a fish harvester or receiver operating in accordance with the Animal Products Act 1999) – see *Purchasing and receiving goods*.

Chilled seafood

Raw seafood must be prepared and/or packaged (identify which apply):

- in a defined area that is separate from cooked or RTE food;
- in the same area but processing and handling of raw seafood takes place at a different time to cooked or RTE food, with thorough cleaning and sanitising in between (raw food preparation should be after cooked or RTE food);
- using dedicated utensils (e.g. knives) for raw foods and cooked and ready-to-eat foods;
- using shared utensils but with thorough cleaning and sanitising in between.

People who prepare raw seafood must (identify which applies):

- only work with raw seafood;
- work with other foods as well and follow good personal hand hygiene practices before handling other foods

How this is done

Frozen seafood

- Frozen seafood must be kept frozen solid unless:
 - it is to be sold thawed; or
 - is being thawed for processing (e.g. as an ingredient in a seafood pie).
- Thawed seafood must not be refrozen.

See *Chilled and frozen food and Defrosting frozen food*.

Preparing seafood

- Seafood must be checked before preparation for signs of deterioration or spoilage including:
 - discolouration/appearance;
 - odour;
 - texture; and
 - gases formed by spoilage bacteria in packaging (e.g. 'blown' bags).
- Any visible contamination must be removed.
- Fish, especially scombroid fish, must have been rapidly chilled after catching and have been kept chilled until processed or cooked.
- Seafood must be protected from contamination and kept chilled when not being prepared.
- Gut and gut contents must not come into contact with edible flesh.
- Processing waste intended for use as bait – e.g. fish heads – must be put in containers and stored so that it cannot contaminate food for sale;
- Clean water must be used when rinsing seafood.
- Seafood must be handled hygienically.
- Packaging must completely cover the food and prevent contents from leaking.

What if there is a problem?

If seafood shows signs of spoilage (discolour, odour, smell, slime) it must be removed and disposed of – see also *Live shellfish*.

If processing and handling procedures aren't followed find out why and take action to stop it happening again.

Retrain staff if necessary.

Write it down

You must write down in the Cleaning schedule the surfaces to be cleaned and equipment used to clean them, when they need to be cleaned (and sanitised); how this is done, and by whom.

You must write down (e.g. in the Diary):

- the daily temperature checks for seafood storage and displays and action taken if temperatures are too warm; and
- any problems that occurred and what you did to resolve them and prevent them from happening again.



Histamine poisoning

Poisoning occurs when fish, particularly scombroid fish such as Kahawai, tuna and mackerel, are not handled or chilled appropriately and bacteria convert amino acids into biogenic amines. When eaten, these cause allergic symptoms such as rashes and skin inflammation. Heating does not destroy the amines.

Scombroid fish can have a 14 day safe shelf life at 0°C if chilled quickly (meaning reducing the internal temperature to 10°C or less in 6 hours), but this reduces to only 7 days at 4.4°C (these times include time on the boat). The fish should not be exposed to temperatures >4.4°C for more than 4 hours after the initial chilling. Vacuum packaging is not an effective means of retarding the production of amines.

Parasites in fish

Nematodes (a type of round worm from the family Anisakidae) occur naturally in marine fish. They only become a concern for consumers in raw or lightly preserved fish such as sashimi, sushi, ceviche, and gravlax. These parasites can be:

- individually removed from raw fish without making it unsafe;
- killed by deep-freezing fish for at least a week;
- killed by thorough cooking.

Batters, marinades and coatings

Goal

To make and use batters, marinades, and coatings in ways that prevent cross-contamination and the growth of harmful microbes.

To ensure that only permitted food additives are used in marinades and coatings.

Act requirements:

- Food must be processed and handled in ways that minimise the contamination or deterioration of food and prevent food containing substances that are unexpected or unreasonable.
- There must be procedures for controlling hazards at each production and processing and handling step where it is essential to eliminate or reduce a hazard to an acceptable level.

Why?

- Batters, marinades and coatings can contain allergens that can be passed to meat and other food.
- Raw foods dipped into marinades and coatings can leave harmful microbes behind.
- The Food Standards Code Standard 1.3.1 only permits certain food additives to be added to meat, poultry, game and fish products.
- If more of a food additive is used than is permitted safe limits may be exceeded.

How this is done

Ingredients must be suitable for any products made – see *Purchasing and receiving food*.

Surfaces and equipment used for preparing food must be in sound condition and clean before use. Surfaces in contact with ready-to-eat foods must be sanitised before use – see *Cleaning and Equipment, packaging and other items in contact with food*.

Potential for cross-contamination between batters, marinades and coatings and other foods must be identified – see also *Food allergens*.

Recipes must accurately calculate any prescribed food additives in meat products to meet the Code requirements – see *Additives in meat products, Food Composition – general and Food Composition of meat products, Food allergens, Food labelling*.

Good hand hygiene and personal hygiene practices must be followed when marinating or coating seafood – see *Hand hygiene and Personal hygiene*.

Batters, marinades, and coatings

- Batters, marinades and coatings must be made-up and used either following manufacturers' instructions, or to own tried and tested recipes.
- Food additives that are only permitted in limited amounts must be added in quantities that ensure those limits are not exceeded in the final product.
- Made-up/bulk batters, coatings and marinades must either be stored chilled and covered until use; or stored following manufacturers' instructions.
- Batters, coatings and marinades must be applied hygienically and seafood stored chilled until it is either processed further or sold.
- Batters, marinades, and coatings left over from processing are thrown away at the end of the processing day.
- Batters, marinades and coatings that contain allergens are applied in ways that prevent contamination of foods that don't contain allergens.

What if there is a problem?

If:

- own recipes are not followed, or manufacturers' instructions are ignored;
- batters, marinades, and coatings are not stored properly or are not discarded at the end of each day;
- allergenic ingredients are allowed to cross-contaminate other products or are not identified in ingredients.

Identify what caused the problem, change practices and train/retrain staff to prevent a recurrence.

Write it down

You must write down in the Cleaning schedule the surfaces to be cleaned and equipment used to clean them, when they need to be cleaned (and sanitised), how this is done, and by whom.

You must write down (e.g. in the Diary) what action you have taken if marinating or coating has not been carried out correctly.

Keep a copy of the recipe and method for each marinade and coating. This will help ensure consistency of ingredients each time it is made-up and accuracy of the formulation. This can be found (state where recipe kept):

Identify on the recipe ingredients containing allergens.

Cooking seafood and other foods

Goal

To ensure seafood and other foods are properly cooked.

Act requirements:

- Food must be processed and handled in ways that minimize the contamination or deterioration of food and prevent food containing unexpected or unreasonable substances.
- There must be procedures for controlling hazards at each processing and handling step where it is essential to eliminate or reduce a hazard to an acceptable level.

Why?

- If potentially hazardous food that needs cooking to make it safe to eat is not cooked thoroughly to kill harmful microbes customers could be made ill.
- The Australia New Zealand Food Standards Code (the Code) requires cooked crustacea to be free from *Salmonella*.

How this is done

Food must be prepared hygienically – see *Preventing cross-contamination, Preparing raw meat, poultry & fish* and *Defrosting frozen food*.

Surfaces and equipment must be in sound condition and clean before use. Surfaces in contact with ready-to-eat foods must be sanitised before use – see *Cleaning, Equipment, packaging and other items in contact with food, Maintenance and Food allergens*.

Good hand hygiene and personal hygiene practices must be followed when handling food – see *Hand hygiene and Personal hygiene*.

When using a thermometer the procedure *Checking temperatures and calibrating thermometers* is followed.

Fish and shellfish

Fish and shellfish must be checked for thorough cooking

- Look for change in colour and texture when cooked – for fish this will depend on the species.
- Prawns will turn from blue-grey to pink and scallops become milky white and firm when cooked.
- Before cooking, any mussel or clam with a damaged shell or an open shell that won't close when tapped is thrown away as it may not be safe to eat.
- To check that a mussel or clam is cooked, make sure the shell is open and that the mussel or clam has shrunk inside the shell. If the shell has not opened during cooking, throw it away.
- See also *Validating a seafood cooking process* and *Checking seafood is cooked*.

Crustacea

Cooked prawns and lobster have turned from blue-grey to pink – see also *Validating a seafood cooking process* and *Checking seafood is cooked*.

Frozen products

- Products that need to be thawed before cooking must be thoroughly defrosted – see *Defrosting frozen food*.
- Manufacturer's instructions must be followed when cooking products designed to be cooked from frozen.
- Cooked food must be checked to ensure that it has been cooked thoroughly.

How this is done

Cooking processed foods

- Manufacturer's instructions, if provided, must be followed for cooking manufactured and processed foods.
- Each time food is cooked (identify which applies):

it is checked that it has been cooked-through thoroughly; time/temperature settings that will consistently cook food thoroughly have been identified, have been validated and are followed for each product. This information can be found (specify where):

Meat and poultry

- Meat and poultry must be cooked-through thoroughly following procedures in the Plan – see specialist sections for either *Butchery Safe* or *Deli Safe*.
- Liquids (e.g. soups, sauces) – cold spots are avoided by stirring frequently so that an even temperature is reached.

Eggs and egg pulp

- Whole eggs must be clean and free from cracks and used within their "Best-before" date;
- Egg-pulp must be pasteurised when being used for uncooked or lightly-cooked foods and used in accordance with its date mark.

What if there is a problem?

An ammonia smell in fish is a sign of decomposition and the fish must not be used.

If food is undercooked, cook it for longer.

If this happens frequently, check recipes and change cooking times and/or temperatures, divide food into smaller quantities or use different equipment.

Retrain staff as necessary.

Write it down

If you use a validated cooking process you must write down the cooking temperature and time it takes to thoroughly cook the food.

If food does not cook properly when following set recipes and procedures you must record (e.g. in the Diary) what you did with the food and what action you took to prevent this happening again.



Cold tolerant harmful organisms

If you are making vacuum packed chilled foods and you want a shelf life of more than 10 days, you may need to consider controls for cold tolerant *Clostridium botulinum*. This will be important if you have identified *Clostridium botulinum* as a hazard that is reasonably likely to occur in your ingredients (e.g. because they are imported ingredients). If that is the case, speak to MPI for more advice before you make the product. There's more information at:

www.food.gov.uk/sites/default/files/multimedia/pdfs/publication/vacpack0708.pdf

Validating a seafood cooking or hot smoking process

THIS DOES NOT APPLY TO PRODUCTS FOR IMMEDIATE CONSUMPTION

This is what you can do if you regularly cook seafood and you don't want to check its temperature each time you cook it.

You must use the same equipment and the same standard ingredients (the same size and weight of the same type of food) each time you cook the product. The following process will enable you to prove (validate) that a standard cooking procedure will properly cook the food. If you want to validate your cooking process you must follow the steps in this procedure.

1. Cook using a standard cooking process (e.g. a temperature setting for a set time).
2. At the end of the set time, check the temperature of the centre of the thickest part of the food item with a probe thermometer to measure if it has either exceeded 75°C or met one of the time/temperature combinations from the table below. If there is a known cold spot in the cooker, check product cooked there.

Internal temperature	mussels	Salmon/oily fish	Hoki/lean fish	Other shellfish, crustacea, novel products
60	32.5 min	26.5 min	12 min	45 min
63	6 min	8.5 min	4.25 min	13min
65	2.25 min	4.5 min	2.25 min	6 min
68	30 sec	2 min	1 min	2 min
70	5 sec	35 sec	10 sec	1.5 min
75	1 sec	5 sec	2 sec	15 sec

Times are the minimum times required at the centre of the thickest part of the product and represent a 6D process for *Listeria monocytogenes*. See also the MPI publication *Code of Practice: Processing of Seafood Products*.

3. Write down the result of your time/temperature checks in the table below.
4. Repeat the standard cooking process in steps 1 and 2 on at least three separate occasions until confident a safe temperature will be consistently reached for the time required.

If the food does not reach a safe temperature on three occasions increase the cooking time and/or cooking temperature and repeat steps 1-3 above.

When you are confident that the standard cooking process ensures that the food is cooked, regularly check with a probe thermometer – such as once-a-week, or every fifth batch – that the cooking method continues to work as planned.

Food item and description (recipe, size/weight, thickness):							
Select the temperature the seafood item will be cooked to: [tick as appropriate]							
Cooked to higher than 75°C				Cooked at _____ °C for _____ minutes			
Cooking details							
Date	Method (How was the food cooked?) What equipment was used? What cooker temperature setting was used?	Time started cooking	1st probe*		2nd probe		Initials
			time	temp	time	temp	
1st							
2nd							
3rd							

*if the temperature is higher than 75°C it isn't necessary to probe a second time

You can make copies of the above validation tables if you have other items that you cook this way.

Checking seafood is cooked

THIS DOES NOT APPLY TO PRODUCTS FOR IMMEDIATE CONSUMPTION

It is important that all ready-to-eat seafood cooked on-site is thoroughly cooked. The table below enables you to identify the process followed for each seafood item that is cooked to ensure that it will be properly cooked.

Write it down

Use the table below to identify and record which checks are done to make sure that smoked ready-to-eat seafood products are properly cooked.

Step 1 – In column A write down all the seafood products that need checking.

Step 2 – In column E tick the box to show that either the product will be smoked and cooked to more than 75°C, or identify the time/temperature that has been validated as thoroughly smoke and cook the product (at proven time/temperature setting).

Step 3 – In columns B to D identify how you check that each product is properly cooked.

- If you temperature probe each product every time it's cooked tick the box in column **B**. Each time you cook this item write the temperature it has been cooked to on the *Cooking temperature record*.
- If you cook a number of the same product together and temperature probe one item in each batch, tick the box in column **C**. Each time you cook a batch of this product write the temperature of the probed item on the *Cooking temperature record*.
- If you have a proven time/temperature setting for the item (you have completed the Validating a cooking process procedure for it) tick the box in column **D**. Then regularly – such as once a week, or every fifth time that the product is cooked – measure the temperature when cooking it to confirm that the time/temperature still cooks it. Write this temperature in the Diary.

Internal temperature	mussels	Salmon/oily fish	Cod/lean fish	Other shellfish, crustacea, novel products
60	32.5 min	26.5 min	12 min	45 min
63	6 min	8.5 min	4.25 min	13min
65	2.25 min	4.5 min	2.25 min	6 min
68	30 sec	2 min	1 min	2 min
70	5 sec	35 sec	10 sec	1.5 min
75	1 sec	5 sec	2 sec	15 sec

A Seafood product (list each type)	Temperature probe (tick as appropriate)			E Temperature item must reach in thickest part (tick as appropriate)
	B Every item, every time	C One item in every batch	D One item regularly, e.g. once a week or every 5th batch	
				75°C+ or °C for mins
				75°C+ or °C for mins
				75°C+ or °C for mins
				75°C+ or °C for mins
				75°C+ or °C for mins
				75°C+ or °C for mins
				75°C+ or °C for mins

Hot smoking products

Goal

To ensure that food is smoked hygienically, using materials that won't impart toxic substances to food, and in ways that prevent the growth of harmful organisms.

Act requirements:

- Food must be processed and handled in ways that minimize the contamination or deterioration of food and prevent food containing substances that are unexpected or unreasonable.
- There must be procedures for controlling hazards at each production and processing and handling step where it is essential to eliminate or reduce a hazard to an acceptable level.

Why?

- Smoke flavours need to meet requirements of the Australia New Zealand Food Standards Code (the Code).
- Smoking materials that have been impregnated with chemicals could make people ill.
- Smoking moist food in the temperature danger zone (5°C to 60°C) will allow harmful microbes to grow.

How this is done



Control of *Listeria monocytogenes* is an important part of this process (see also *Listeria* in the management section).

This procedure applies to hot smoking meat or seafood product that is or will be cooked.

Making a cold-smoked ready-to-eat (RTE) product that is not cooked is not covered by this plan. You must speak to your verifier first.

Surfaces and equipment must be in sound condition and clean before use. Surfaces in contact with ready-to-eat foods must be sanitised before use – see *Cleaning and Equipment, packaging and other items in contact with food, Maintenance and Food Allergens*.

Food must be prepared hygienically – see *Preventing cross-contamination, Preparing raw seafood and Defrosting frozen food*.

Good hand hygiene and personal hygiene practices must be followed when handling food – see *Hand Hygiene and Personal hygiene*.

Cooked products are cooked according to the times and temperatures identified in the plan – see *Cooking seafood and other foods*.

Smoke flavours are food additives and must meet the requirements of the Code, Standard 1.3.14 – see *Food composition and Composition of seafood products*.

Smoke flavours are food additives and must meet the requirements of the Code, Standard 1.3.14 – *Food composition and Composition of meat products*.

Wood chips must be stored dry and be used free from fungus and microbial growth.

Smoking must be carried out in ways that don't allow harmful organisms to grow.

Smoking is best done in a temperature controlled space (e.g. a room or in monitored equipment). This produces more consistent product than using a smoke house where temperature is managed manually.

Consumers must be told if they need to cook a product to make it safe to eat – see *Food labelling*.

How this is done

Smoking products

Only fresh seafood must be smoked.

Smoke equipment – e.g. heating, air circulation – must be checked as operating properly before loading product.

Smoked products made by the business are: [identify which applies]:

cooked by the business before sale – see *Cooking seafood and other food, Checking seafood is cooked*.

cooked by the consumer after purchase;

☐ uncooked and ready-to-eat reheated*;

uncooked and ready-to-eat unreheated (shelf-stable)*;

* You will need to identify in your plan how you make a safe and suitable product. Speak with your verifier before you make these products about what you must do.

Smoking is carried out [identify which applies]:

in a temperature-controlled space; or

the smoking temperature profile is manually controlled – see *Checking seafood is cooked*.

The smoking process must ensure that:

- product is spaced evenly to help air circulation and even smoking of product;
- only untreated wood that is free from toxic substances (e.g. paint, chemical preservative) is used to make the smoke, or
- liquid smoke is used in accordance with manufacturer's instructions.

After smoking

When it has been smoked, potentially hazardous food must be stored at or below 5°C and must be either [identify which applies]:

marked with the date and time it was smoked, and then either used, or sold to be consumed, within 5 days of processing; or

given a "Use-by" date using information identified through technical assessment. Assessments are found at:

See also *Calculating shelf life*.

What if there is a problem?

If smoking is also intended to cook product, and it is not cooked at the end of smoking, it could mean that there has been equipment malfunction and product will need to be thrown away.

Check that smoke house equipment (e.g. heating, air circulation) is operating properly.

Product that has been exposed for an unknown time to temperatures in the danger zone must be thrown away.

If a smoked product that needs cooking is mistaken for RTE food remove it from sale until it meets requirements of the Code. Find out what went wrong and take steps to prevent it happening again. Retrain staff if necessary. See also Recalling food.



Smoking produces chemicals that can help to inhibit the growth of some microorganisms. It also imparts flavour and colour to products. It is important to know what type of product is produced at the end of hot or cold smoking because this will determine how it needs to be handled:

- Will it be ready-to-eat (RTE) when it leaves the smoker?
- Will it become RTE from further processing by the business/another business?
- Will it need to be cooked by the consumer to make it safe to eat?

Smoking may be used with other preservation methods such as pickling in vinegar.

Write it down

You must write down on the Smoking record for each batch:

Where smoking is part of the cooking process:

- the smoke house air temperature
- the smoking start time
- the smoking finish time
- the core temperature of the food at the end of the cooking period
- whether additional smoking/cooking time was needed

You must write down (e.g. in the Diary):

- where smoking is at a low temperature to impart flavour only:
 - the smoke house air temperature
 - the length of time of the smoking process
- anything that went wrong during smoking, and what you did to put it right and ensure that it doesn't happen again.

Do I have to do this every time?

If you can validate that the time and temperature settings you use always cook the product, you may not need to measure product temperature each time - see Checking hot smoked seafood is cooked.

Record

Name of business:

Specialist retail – fish

Records

Place this page in your Plan Contents section

Specialist fish records

Staff training – specialist fish

Cooking temperature checks

Hot smoking record

Transported food temperature checks

Name:	Telephone:
Position:	Start date:
Address:	

Topic	Relevant	Employee signed*	Supervisor signed†	Date
Essential training				
<i>See also Staff member record for the Basics training</i>	<input checked="" type="checkbox"/>			
Training as needed				
Additives in fish and fish products				
Limits for harmful microbes in fish products				
Composition of fish products				
Live shellfish				
Preparing raw seafood				
Batters, marinades and coatings				
Cooking seafood and other foods				
Validating a seafood cooking or hot smoking process				
Checking seafood is cooked	<input type="checkbox"/>			
Hot smoking products				
	<input type="checkbox"/>			
	<input type="checkbox"/>			
	<input type="checkbox"/>			
	<input type="checkbox"/>			

† The employee has been trained and has demonstrated a good understanding of the procedure and has been observed consistently following it.

Other food safety training attended

Date	Details

Notes:

Cooking temperature checks

Fish and products containing fish that are **not** cooked using a standard time/temperature setting must be checked each time with a thermometer to ensure that they reach at least 75°C. If the temperature does not reach at least 75°C, cook the product for longer until it does.

[illegible]

*If temperature is more than 75°C on first probing, further probing will not be necessary.

[illegible]

Transported food temperature checks

Seafood (other than live shellfish) that needs to be kept cold must be transported at or below 5°C. Food that needs to be kept hot must be transported at 60°C or more. Record transported food temperatures here.

[illegible]

