



STANDARD 3.2.2
FOOD SAFETY PRACTICES
AND GENERAL REQUIREMENTS

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Division 1 — Interpretation and application

1 Interpretation

This clause includes definitions applicable to this standard only. Definitions that apply to more than one of the standards are specified within Standard 3.1.1. Standards 1.1.1 and 1.1.2 also provide definitions of terms used throughout the Code.

1 In this Standard, unless the contrary intention appears —

carrier of a foodborne disease does not include a person who is a carrier of *Staphylococcus aureus*.

The definition has been included to clarify that persons (including food handlers) who carry the foodborne pathogen *Staphylococcus aureus* are not considered to be carriers of a foodborne disease. This is because many healthy persons carry *S. aureus* as part of the normal microflora of the nose, throat, or skin (Stewart 2003).

A 'carrier of a foodborne disease' is referred to in subclauses 14(1), 16(1) and 16(3).

condition means an infected skin lesion or discharges from the ear, nose or eye.

A food handler who has any discharge from the ear, nose or eye due to an infection (for example colds, flu and eye sties) or an allergy is considered to be suffering from a condition. Examples of an infected skin lesion include an infected skin sore, boil, acne, cut or abrasion.

A person who is suffering from a condition may pose an additional risk of contaminating food with foodborne pathogens such as *Staphylococcus aureus*.

'Condition' is referred to in subclauses 14(2) and 16(2).

environmental conditions means conditions under which certain food may be required to be stored including temperature, humidity, lighting conditions and atmosphere.

'Environmental conditions' influence the safety and suitability of food by affecting the growth of spoilage or pathogenic microorganisms, or chemical or physical deterioration.

'Environmental conditions' is explained in detail after paragraph 6(1)(b).

foodborne disease means a disease that is likely to be transmitted through consumption of contaminated food.

If a food handler is infected with a pathogen that can be transmitted by food, they are considered to have a foodborne disease. The affected food handler could transfer the pathogens to food while handling food or surfaces that come in contact with food, and the contaminated food could then cause illness in the people who eat it.

'Foodborne disease' is referred to in subclauses 14(1), 16(1) and 16(3).

food safety program means a program set out in a written document retained at the food premises of the food business, including records of compliance and other related action, that:

- (a) systematically identifies the potential hazards that may be reasonably expected to occur in all food handling operations of the food business;
- (b) identifies where, in a food handling operation, each hazard identified under paragraph (a) can be controlled and the means of control;
- (c) provides for the systematic monitoring of those controls;
- (d) provides for appropriate corrective action when that hazard, or each of those hazards, is found not to be under control;
- (e) provides for the regular review of the program by the food business to ensure its adequacy; and
- (f) provides for appropriate records to be made and kept by the food business demonstrating action taken in relation to, or in compliance with, the food safety program.

A 'food safety program' is referred to in paragraphs 25(a) and 25(b).

frozen does not include partly thawed.

This definition clarifies that frozen potentially hazardous food must be kept at a temperature that ensures the food remains completely frozen. If any part of this food has begun to thaw, the food has not been kept frozen. The temperature for keeping potentially hazardous food frozen has not been specified and must, at a maximum, be low enough to keep the food frozen. For packaged frozen food, refer to the storage conditions included on the label for advice on the best temperature for keeping the food frozen.

'Frozen' is referred to in subclause 5(4) and paragraphs 6(2)(b), 8(5)(b) and 10(c).

potentially hazardous food means food that has to be kept at certain temperatures to minimise the growth of any pathogenic microorganisms that may be present in the food or to prevent the formation of toxins in the food.

This definition clarifies that the only food that must comply with certain temperature requirements specified in Standard 3.2.2 is food that needs temperature control to minimise the growth of foodborne pathogens or the production of toxins. Toxins could be produced by pathogenic microorganisms or be formed in foods through compositional degradation.

For a food to be considered potentially hazardous, it must meet both of the following criteria:

- the food may contain a microorganism that needs to multiply in order to cause illness; and
- the food will support the growth of the microorganism.

The intrinsic characteristics of a food (particularly its nutrient content, moisture content and acidity) and the way in which it has been processed will affect these criteria. Further technical details and examples of foods that are potentially hazardous and not potentially hazardous are provided in Appendix 1.

'Potentially hazardous food' is referred to in clauses 5, 6, 7, 8, 10 and 22.

process, in relation to food, means activity conducted to prepare food for sale including chopping, cooking, drying, fermenting, heating, pasteurising, thawing and washing, or a combination of these activities.

The definition is intended to cover all activities that are carried out when preparing food for sale. Although it includes the activities listed in the definition, process is not limited to these activities.

'Process' is referred to in clause 7.

ready-to-eat food means food that is ordinarily consumed in the same state as that in which it is sold and does not include nuts in the shell and whole, raw fruits and vegetables that are intended for hulling, peeling or washing by the consumer.

'Ready-to-eat food' is food that can be eaten without having anything further done to it; for example, cooked meats and seafood (including cooked crustaceans in their shells), processed dairy products, confectionery, bread and other processed foods. It includes raw foods prepared for consumption such as cut fruit and salads. It also includes food products made with raw egg, meat and fish that are intended to be eaten without cooking, for example aioli, steak tartare, and sushi. Foods that might be just heated before serving are still considered ready-to-eat, for example cold quiche and frozen cooked meals. Ready-to-eat food may or may not be potentially hazardous (see Appendix 1).

More stringent requirements apply to ready-to-eat food because any contamination will not be removed by a processing step before the food is consumed. Even very low levels of contamination with certain pathogens (e.g. norovirus, *Campylobacter jejuni*) can result in illness. Once food is contaminated with these types of microorganisms it is considered unsafe because it might cause illness even if the pathogens do not actively grow in the food. Similarly, contamination from chemical aerosols, for example, is unlikely to be removed before ready-to-eat food is eaten and may be unsafe.

'Ready-to-eat food' does not include whole raw fruits and vegetables as these are intended to be washed, hulled or peeled before they are consumed.

'Ready-to-eat food' is referred to in subclauses 8(2) and 8(4) and paragraphs 15(1)(b), 15(2)(b) and 18(3)(b).

symptom means diarrhoea, vomiting, sore throat with fever, fever or jaundice.

People with these symptoms may have a disease that can be transmitted through food. For example, the common symptoms produced by norovirus are diarrhoea, fever and vomiting, and Hepatitis A virus causes fever and jaundice.

The symptom of 'fever with sore throat' has been specifically included to identify persons who may be suffering from *Streptococcus pyogenes*, a bacterial infection that can be transmitted through contaminated food. The symptom of a sore throat by itself is not included, as this may occur for example with the common cold.

'Symptom' is referred to in subclauses 14(1) and 16(1).

temperature control means maintaining food at a temperature of:

- (a) 5°C, or below if this is necessary to minimise the growth of infectious or toxigenic microorganisms in the food so that the microbiological safety of the food will not be adversely affected for the time the food is at that temperature; or
- (b) 60°C or above; or
- (c) another temperature — if the food business demonstrates that maintenance of the food at this temperature for the period of time for which it will be so maintained, will not adversely affect the microbiological safety of the food.

Potentially hazardous food (defined above) must be kept at certain temperatures to ensure that microorganisms that may be present or toxins they produce, do not make the food unsafe.

Foodborne illness may occur as a result of an infection (where the number of pathogenic microorganisms is sufficient to cause illness), or toxins formed in the food or intestinal tract. Infectious microorganisms include viruses, parasites and bacteria such as *Salmonella*, *Listeria monocytogenes*, *Campylobacter jejuni* and *Vibrio parahaemolyticus*. Toxigenic microorganisms include bacteria such as *Bacillus cereus*, *Clostridium botulinum*, *Clostridium perfringens* and *Staphylococcus aureus*.

Food may become unsafe if a pathogenic microorganism is allowed to grow to sufficient numbers to make the food unsafe.

The temperatures specified in this definition are based on scientific knowledge of foodborne microorganisms and how they grow or produce toxins. Most foodborne pathogens will not grow at temperatures of 5°C or below. However, some pathogens, such as *Listeria monocytogenes* and certain strains of *Bacillus cereus* and *Clostridium botulinum*, will still grow slowly at temperatures of 5°C and below. The growth rate of such pathogens will reduce as the temperature decreases. The lowest temperature reported for pathogen growth, reported for *Listeria monocytogenes*, is -1.5°C (FSANZ 2013). Foodborne pathogens will not grow at temperatures of 60°C or above.

The amount of time a potentially hazardous food can be kept safely will depend on the characteristics of the food, what microorganisms may be present in it and the conditions under which the food is kept. A food business may keep food at temperatures between 5°C and 60°C if it can demonstrate that the safety of the food is not adversely affected — use of a scientifically validated process is usually required (see clause 25). Appendix 2 includes more information on the use of time and temperature control for potentially hazardous food.

'Temperature control' is referred to in paragraphs 6(2)(a), 8(5)(a) and 10(b).

2 Application of this Standard

This Standard applies to all food businesses and food handlers in Australia in accordance with Standard 3.1.1 (Interpretation and Application).

Standard 3.2.2 applies to all businesses and activities that involve the handling of food intended for sale, or the sale of food. The definition of food business in Standard 3.1.1 excludes primary food production activities. The application of Standard 3.2.2 to seafood businesses, poultry processors, producers of ready-to-eat meat, dairy processors, egg processors and sprout processors is specified or clarified under the respective Chapter 4 standard for these commodities.

For collated guidance on the application of this standard to home-based businesses, and temporary and mobile premises, see Appendix 9 and Appendix 10.

Division 2 — General requirements

3 Food handling — skills and knowledge

The intended outcome is that persons undertaking or supervising food handling operations have appropriate skills and knowledge in food safety and food hygiene matters.

3(1) A food business must ensure that persons undertaking or supervising food handling operations have:

- (a) **skills in food safety and food hygiene matters; and**
- (b) **knowledge of food safety and food hygiene matters, commensurate with their work activities.**

Persons supervising or conducting food handling operations must possess the skills and knowledge in food safety and hygiene matters required to handle food safely. Specific mandatory training in food safety and hygiene is not required by this clause, as it is recognised that skills and knowledge may be gained in different ways. However, it should be noted that mandatory requirements may be required by state or territory legislation (e.g. requirement for a food safety supervisor).

Codex (2003) provides the following definitions for food hygiene and food safety:

Food hygiene — all conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain

Food safety — assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use.

Put simply, food safety is the outcome while food hygiene is how this is achieved. In this context, having a **skill** means that a food handler has the ability to perform those tasks that are necessary to ensure the safety of the food being handled. **Knowledge** means that a food handler must have an understanding of the issues relating to and the principles surrounding food safety and food hygiene matters.

Commensurate with work activities

All food handlers and persons supervising food handling must have the skills and knowledge in both food safety and food hygiene matters appropriate to the food handling operations they carry out. This means the level and content of skills and knowledge required will depend on the work activities (e.g. the skills and knowledge required of a cook will be different from those of a waitress or a cleaner). The example below illustrates the skills and knowledge that a food handler may need to prepare cooked chicken safely.

Example	<p>Skills and knowledge for handling poultry</p> <p>A food handler is responsible for preparing and cooking chicken for retail sale. The food handler must have the appropriate skills and knowledge in food safety and food hygiene matters to ensure that the cooked chicken is safe and to prevent cross-contamination of other foods and food contact surfaces. See table below.</p>
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Knowledge:	Skills:
Raw chickens are likely to be contaminated with pathogenic microorganisms (e.g. <i>Campylobacter</i> and <i>Salmonella</i>) and must be handled and processed correctly to prevent foodborne illness.	
<ul style="list-style-type: none"> Raw chicken can contaminate food and food contact surfaces and must be kept separate from any cooked/ready-to-eat foods. 	<ul style="list-style-type: none"> Clean and sanitise equipment and work surfaces and maintain a clean work area. Manage work flow to prevent cross contamination.
<ul style="list-style-type: none"> The recommended temperature required to properly cook the chicken (e.g. thickest part of the chicken meat reaches at least 75°C). 	<ul style="list-style-type: none"> Determine if equipment is set at the right temperature. Measure the temperature of the cooked food (e.g. using a probe thermometer).
<ul style="list-style-type: none"> Hands/gloves or equipment used to handle raw chickens may be a potential source of microbial cross-contamination for cooked chickens and other food and equipment. 	<ul style="list-style-type: none"> Wash hands properly to reduce the potential for cross-contamination. Correct use of gloves (e.g. changing between tasks).
<ul style="list-style-type: none"> Other sources of contamination, such as dirty clothes or dirty work benches, can contaminate the cooked product. 	<ul style="list-style-type: none"> Protecting cooked chicken from contamination.
<ul style="list-style-type: none"> Raw and cooked chicken are potentially hazardous foods and require storage and display under temperature control (e.g. 5°C or below or 60°C or above). 	<ul style="list-style-type: none"> Determine if equipment is set at the right temperature and food is held at correct temperature.

Obtaining the required skills and knowledge

There are many options that a food business can choose from to ensure that food handlers obtain the skills and knowledge required to produce safe food. Examples of these include:

- in-house training
- distribution of relevant documentation to employees
- having operating procedures in place that clarify the responsibilities of food handlers and supervisors
- attendance at food safety courses run by local councils or other bodies
- completion of online food safety training courses
- hiring a consultant to present a course
- formal training courses.

Further information on food safety and hygiene courses is available on the National Register of VET (Vocational Education and Training) website (see Resources and References). Note that some jurisdictions may have specific competency and training requirements for food safety supervisors or similar, where training must be delivered by a registered training organisation.

It may be useful for food businesses to keep records of staff training, to help ensure staff have relevant and up-to-date skills and knowledge. Such records may include a plan that identifies the training needed by each staff member or category of work, and details of what training has been completed and when. It is important that appropriate skills and knowledge are maintained and updated as needed, particularly in response to staff turn-over or the introduction of new processes. Businesses should also consider training materials available for staff where English is not their first language.

Useful guidance materials

Many best-practice guidance materials (such as online training courses, fact sheets, guidebooks and posters) covering various aspects of food safety and food hygiene are available free of charge from national, state, territory and local governments as well as industry organisations. Resources include useful illustrated materials and information in a variety of different languages. The Resources and References section of this document includes useful website links.

Determining that staff have the required skills and knowledge

Even though training has been provided to a staff member, it does not guarantee that he or she will have the appropriate skills and knowledge required for the position. To help ensure staff meet this requirement, the business proprietor may find it useful to:

- discuss the principles of food safety and food hygiene with employees
- have appropriate operating procedures in place
- observe the work practices of food handlers.

Jurisdictional authorities may require food handlers and supervisors to complete extra training if inspectors are not satisfied that staff have the necessary skills and knowledge to keep food safe.

3(2) Subclause (1) does not apply to a food business in relation to persons undertaking food handling operations for fundraising events at which only food that is not potentially hazardous or is to be consumed immediately after thorough cooking is sold.

This exemption has been included because food businesses raising money for community or charitable causes are often run by volunteers. Volunteers might only help out in one or two events, so it is not practical to require them to obtain skills and knowledge in food hygiene and safety matters. However, the exemption only applies to events selling food that is not potentially hazardous (see Appendix 1) or food that is to be consumed immediately after thorough cooking because there is a lower risk of causing foodborne illness.

- Examples of foods that are not potentially hazardous and are likely to be sold at fundraising events include cakes (not containing fresh cream or fresh custard), biscuits, packaged chips and confectionery. These foods are low risk because they do not support the growth of pathogenic microorganisms or toxin formation.
- Examples of foods that are likely to be consumed immediately after thorough cooking at fundraising events include sausages, burgers and hot dogs. These foods present a low risk because the cooking process should kill any vegetative cells present and there is no opportunity for pathogen growth.

Note that the food business and all food handlers are still required to comply with the remaining provisions of this standard; for example the requirements for hygiene of food handlers.

Food handling not exempted

The exemption in this subclause does not apply to fundraising events selling potentially hazardous foods (unless consumed immediately after cooking), as these foods require additional control measures to keep them safe (e.g. temperature control). As such, appropriate skills and knowledge in food safety and hygiene matters would be required. 'Potentially hazardous' is defined in clause 1 and explained in Appendix 1.

Examples of potentially hazardous foods include fresh salads and sandwiches, products containing eggs, cakes with fresh cream, meat pies and meat and vegetable dishes such as curries. These foods require either refrigerated display or hot holding. However, if cooked food is served immediately after cooking (such as sausages, eggs, bacon etc. at a 'sausage sizzle'), the skills and knowledge requirement of subclause 3(1) does not apply.

Community and charity organisations should be aware of the specific requirements that may apply in the state or territory in which they operate. Food safety information for community fundraisers is also available from state, territory and local jurisdictions (see websites listed in Resources and References).

4 Notification

The intended outcome is that the proprietor of a food business notifies the appropriate enforcement agency of their contact details, their business's nature and the location of all their food premises, and notifies the agency of any proposed changes to that information.

State and territory Food Acts require food businesses to notify the appropriate enforcement agency (usually the local council) of their existence or to register as a food business. 'Food business' is defined under Standard 3.1.1 and the Food Acts.

Food businesses need to give notification once only, unless their notification information changes. There may be simplified arrangements for certain events held by charities and community organisations. Notification is generally not required for vehicles used only to transport food, as they are not defined as food premises under the Food Acts. However, food transport businesses will be required to notify authorities of the location of their operations.

Food businesses should contact their local enforcement agency to check for specific requirements. The Australian Business Licence and Information Service (see Resources and References) may also be helpful for information about meeting compliance responsibilities.

4(1) A food business must, before the food business commences any food handling operations, notify the appropriate enforcement agency of the following information:

- (a) contact details for the food business including the name of the food business and the name and business address of the proprietor of the food business;**

The term 'proprietor' means the person carrying on the food business or, if that person cannot be identified, the person in charge of the business.

New food businesses must notify the enforcement agency before they begin their food handling operation.

- (b) the nature of the food business; and**

This requirement allows the enforcement agency to request information related to the risks of the food business operation, such as the types and volumes of food and the food handling operations that will be undertaken. It may be used to allocate an appropriate priority classification for the business, based on the Food Regulation Standing Committee's Business Sector Food Safety Risk Priority Classification Framework.

- (c) the location of all food premises of the food business that are within the jurisdiction of the enforcement agency.**

Some food businesses have multiple food premises. 'Food premises' is defined under Standard 3.1.1 and under the Food Acts includes any place (e.g. homes, vehicles, carts, tents, stalls, boats, pontoons, etc.) used or kept for handling food for sale, whether or not those premises are owned by the proprietor.

The proprietor of the business must tell the relevant authority the location of all food premises used by the business within the jurisdiction of the enforcement agency.

Mobile food businesses

Mobile food businesses, such as ice cream vans, should notify the local council in which the food vehicle is garaged or housed.

If the food vehicle operates permanently from one site, for example an after-hours fast-food van, the enforcement agency responsible for the area where the vehicle is stationed should be notified, even if the vehicle is housed in an area covered by another enforcement agency.

Operators should be able to nominate whether the vehicle is a mobile vendor of foods or vends permanently stationed in one spot. If there is more than one vehicle, a single notification may be sufficient.

Businesses should seek further advice from their local enforcement agency on specific requirements in that jurisdiction. For example, Victoria has an online registration tool, Streatrader, for all temporary food premises, mobile food vans and vending machines (see Resources and References).

Temporary food premises

For the purposes of this clause, temporary premises can be categorised into two groups and treated independently:

1. regular temporary premises, whether commercial market stalls or fundraising stalls which operate weekly, fortnightly, monthly, quarterly or at any other regular interval, should be treated as permanent food operations and supply notification information only once, unless the notification information changes
2. single-event or annual-event temporary premises, whether fundraising or commercial, should be covered by a temporary events notification.

Businesses should seek further advice from their local enforcement agency on specific requirements in that jurisdiction. For example, Victoria has an online registration tool, Streatrader, for all temporary food premises, mobile food vans and vending machines (see Resources and References).

4(2) When complying with subclause (1), the proprietor of the food business must answer all questions asked by the appropriate enforcement agency in relation to the matters listed in subclause (1) in the form approved from time to time by the relevant authority under the Act.

The proprietor of the food business must provide the enforcement agency with all of the information that is requested in the approved form for the purposes of the Act.

4(3) The food business must notify the appropriate enforcement agency of any proposed change to the information specified in subclause (1) before the change occurs.

It is the responsibility of the food business to inform the relevant enforcement agency of any changes to previously notified information, and to do so before the change takes place. Changes to the proprietor, the nature of business or its location are usually known well in advance. Any change to the nature of business must be notified because it may result in a change to the food premises' risk classification.

The new proprietor is responsible for notifying the enforcement agency of a change in proprietor.

Examples

Notifying changes to food trading

1. A service station selling drinks and confectionery intends to expand the range of food sold to include potentially hazardous food such as hot dogs, pies and sandwiches.
2. A home-based food business making and selling jams and sauces decides to expand its food handling activities to cater for birthday parties and community gatherings.

In each case the food business must inform the appropriate enforcement agency of the change, as it will change the nature of the food business and the associated food safety risks that need to be managed.

4(4) A food business that exists at the time of the commencement of this clause must provide the appropriate enforcement agency with the information specified in subclause (1) within three months of the commencement of this clause.

This clause is now outdated and will be removed when the standards are updated.

Division 3 — Food handling controls

5 Food receipt

The intended outcome is that food businesses take all practicable measures to ensure they only receive food that is safe and suitable, including:

- only accepting food that is protected from the likelihood of contamination
- being able to identify the received food and its supplier
- ensuring potentially hazardous food is under temperature control.

The phrase ‘practicable measures’ recognises that a food business cannot inspect every food item it receives, nor categorically assess whether inspected food is contaminated.

5(1) A food business must take all practicable measures to ensure it only accepts food that is protected from the likelihood of contamination.

Food businesses must not accept food that is contaminated. ‘Contamination’ is explained in Standard 3.1.1, including possible sources of contamination. As contaminated food might not be identifiable by its look, smell or taste, a food business must only take all practicable measures to accept food that is protected from the likelihood of contamination.

Practicable measures in this context could include:

- sourcing food from reputable suppliers
- having specific, agreed instructions in place with the supplier to protect food from contamination; for example:
 - » food is to be delivered in appropriate packages or containers
 - » written assurance that food has been handled and transported to prevent contamination as appropriate (e.g. supplier has pest control program)

- ensuring that food is only delivered when there is someone at the business to receive and assess it, or that a suitable alternative system is in place (e.g. providing access to a suitable, secure, cool room)
- inspecting randomly selected food items from a delivery, for visible signs of
 - » contamination, damage or deterioration of the food
 - » contamination, damage or deterioration of the food's packaging.

It might not always be practicable for a business to check items as they are delivered to the premises. For example, a supplier may be instructed to place certain food deliveries directly into a storeroom for later inspection. In such cases both the supplier and the food business receiving the food should agree that the food is accepted only under concession and not 'received' until it has been assessed by the food business.

If a food is found to be contaminated or not protected from the likelihood of contamination, it should be rejected. It should be returned to the supplier or destroyed with the supplier's consent. Rejected food held on the premises must be identified and kept separate from other food to ensure it is not sold (see clause 11). The food business may find it useful to keep records of when and why food has been rejected.

Examples

Foods rejected due to lack of protection

1. Packaged meat

A deli owner has a weekly order with a wholesaler for ten packaged smoked hams. When each order is delivered, the hams are inspected. During one of these inspections, the deli owner notices that part of the packaging around one of the hams is split. All of the hams are then inspected and it is found that another two hams have split packaging. Since the packaging no longer completely protects these hams, they might have become contaminated. The deli owner rejects these three hams, clearly identifies them for disposal and returns them to the supplier.

2. Eggs

A home-based caterer receives a delivery of eggs to make mayonnaise for an upcoming event. She inspects the eggs to check they are stamped, intact and clean and notices that some eggs are cracked and dirty. This means the eggs and the internal contents of the eggs might be contaminated with pathogenic *Salmonella*. The business owner rejects these eggs and changes to a more reputable supplier. (Note: Standard 4.2.5 — Primary Production and Processing Standard for Eggs and Egg Products prohibits the sale of cracked and dirty eggs unless sold for pasteurisation and requires each egg to be stamped with the producer's unique identification so the eggs can be traced.)

5(2) A food business must provide, to the reasonable satisfaction of an authorised officer upon request, the following information relating to food on the food premises:

- (a) the name and business address in Australia of the vendor, manufacturer or packer or, in the case of food imported into Australia, the name and business address in Australia of the importer; and
- (b) the prescribed name or, if there is no prescribed name, a name or a description of the food sufficient to indicate the true nature of the food.

A food business must be able to identify food on its premises and where this food has come from. It is important to be able to trace a food back to its source, especially if it needs to be returned or recalled if it is found to be unsafe or unsuitable (see also clause 12). A food business should not accept any food that cannot be identified.

The information required may be provided in writing or verbally, obtained from an invoice, food packaging or other records. It is good practice to keep a supplier record list — a sample supplier records template is provided in Appendix 8.

A 'prescribed name' is defined in Standard 1.1.2 – Definitions Used Throughout the Code to mean 'a name declared by a provision of this Code to be the prescribed name of the food'. Under the labelling provisions in Standard 1.2.1 – Requirements to Have Labels or Otherwise Provide Information, if a food has a prescribed name, it must be used in the labelling of the food. Very few foods have prescribed names; examples are 'honey', 'infant formula' and 'follow-on formula'.

Most foods are identified by a common name or by specifying what the food is; for example, 'chocolate dairy dessert'. This information will be written on the food's packaging.

Packaged food that is sold for non-retail sale must be labelled with (among other things) the name of the food and the supplier, in accordance with Part 1.2 of the Food Standards Code. This information must be on the carton of food sold to the business, but is not required on individual food packages within the carton. If the outer label is discarded, the information should be retained by the business in case a recall is needed (see clause 12).

Keeping track of a food supplier's details

Example

A butcher purchases meat marinades from a local food business to make its own kebabs. Cartons of marinade delivered by the supplier are labelled with the business's name and address. The individual pouches of marinade inside the carton are not labelled with this information. To make sure the butcher doesn't lose track of where the marinade has come from once it is unpacked, he records the details of both the supplier and the products in his business records.

5(3) A food business must, when receiving potentially hazardous food, take all practicable measures to ensure it only accepts potentially hazardous food that is at a temperature of:

- (a) 5°C or below; or
- (b) 60°C or above,

unless the food business transporting the food demonstrates that the temperature of the food, having regard to the time taken to transport the food, will not adversely affect the microbiological safety of the food.

If potentially hazardous food is not kept under strict temperature control it could become unsafe due to the growth of foodborne pathogens or formation of toxins (see clause 1 and Appendix 1).

Examples of practicable measures a food business can take in this context include all the points listed in 5(1) above, with **added** checks that the potentially hazardous food is under temperature control. For example, the temperature of a chilled food delivery should be measured either using a probe thermometer or measuring the surface temperature of the food or package as applicable. Only a sample of food from the delivery needs to be checked and future deliveries from that supplier monitored appropriately.

While not required by this standard, the business may find it useful to keep delivery records including the time and temperature that food is received, particularly to keep track of the temperature history of food. A sample food receipt template is provided in Appendix 8.

Example

Checking potentially hazardous food has been kept under temperature control

A restaurant owner receives portions of game from a remote rural supplier. When the delivery truck arrives, the business owner checks that the meat has been kept under temperature control for the entire duration of the long journey, by:

- asking to see the truck's temperature data logger (if available) — this indicates whether the food has been correctly transported under refrigeration
- checking the temperature of a randomly selected food sample with a probe thermometer — this confirms the food is at the agreed temperature.

The business owner is confident the meat has been kept cold and accepts the delivery.

Food delivered between 5°C and 60°C

If a food business agrees to accept potentially hazardous food at a temperature between 5°C and 60°C, the food transporter must demonstrate to the receiving business that the practice used is safe (food transporters are also referred to in clause 10).

Examples of situations where it could be safe for potentially hazardous food to be delivered outside the accepted temperature range include:

- the food has been freshly prepared (e.g. sandwiches), transported short distances and then either refrigerated immediately or sold for immediate consumption
- chilled food (5°C or below) or hot food (60°C or above) is only transported short distances, so it is unlikely a slight rise or fall in temperature for this time will affect the safety of the food
- the particular food can be safely maintained at a temperature above 5°C and can therefore be safely transported at this temperature (e.g. Australian Standard AS 4696-2007 *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption* states that raw meat carcasses can be safely maintained at 7°C).

If a food transporter cannot demonstrate to the receiving business that the temperature of the food is safe, the delivery must not be accepted.

5(4) A food business must, when receiving potentially hazardous food, take all practicable measures to ensure that food which is intended to be received frozen, is frozen when it is accepted.

If the potentially hazardous food is intended to be received frozen, it must only be accepted by the food business if it is frozen hard. 'Frozen' is defined as not including food that is partly thawed. A temperature for frozen has not been specified. The business receiving the food and the business transporting the food should agree on the temperature at which the food is to be delivered. Most food businesses will have strict temperature requirements to ensure the food's quality is maintained.

Examples of practicable measures in this context are as listed for subclause 5(1), with added checks that the potentially hazardous food is frozen hard and at the agreed temperature.

Under some circumstances, the food business might need the food to be delivered partially or completely thawed and would have arrangements with the food transporter for this. In this case the food is not intended to be received frozen when it is accepted.

Scope of the temperature requirements in subclauses (3) and (4)

The temperature requirements in subclauses (3) and (4) are only for potentially hazardous food. However, for food quality reasons, the business might want to check the temperatures of delivered perishable and frozen foods that are not potentially hazardous. These foods should be received at the storage temperatures recommended by the manufacturer.

If the food business purchases and transports its own food, clause 10 will apply.

6 Food storage

The intended outcome is that during storage, the safety and suitability of food is maintained by:

- storing food so that it is protected from contamination and is in an appropriate environment
- storing potentially hazardous food at a temperature that minimises the opportunity for pathogenic bacteria to grow.

Food is considered to be 'stored' if it is not being processed, displayed, packaged, transported or identified for disposal.

While all food should be stored in a way that keeps it safe and suitable, extra care should be taken with:

- unpackaged food, because it is generally more vulnerable to exposure to hazards and environmental conditions
- ready-to-eat food (see clause 1), because it will not be further treated to reduce or remove any contamination before it is eaten
- potentially hazardous food, because if it is contaminated with pathogenic microorganisms these could grow to dangerous levels during storage (see clause 1 and Appendix 1) — additional requirements for this food are discussed in subclause 6(2).

6(1) A food business must, when storing food, store the food in such a way that:

(a) it is protected from the likelihood of contamination; and

'Contamination' is explained in Standard 3.1.1, including possible sources of contamination. Food might not be identifiable as contaminated by its look, smell or taste, so to ensure stored food stays safe and suitable it must be protected. Businesses should consider how and where their food is stored and take steps to prevent it coming in contact with biological, chemical, physical or other contaminants.

Examples of general best practice for food storage are listed below.

- Food should be stored in containers or other wrapping that is food-grade (i.e. safe for food use).
- Packaged food should be regularly inspected to make sure it remains intact and properly protecting the food. Any food that might be contaminated because packaging is unsuitable or damaged should be disposed of as per clause 11.
- Raw food such as raw meat and seafood should be stored separately from or below ready-to-eat foods, to avoid contamination from the raw food (e.g. meat juices) being transferred to the ready-to-eat food.
- Food should be stored separately to chemicals (e.g. cleaning agents and pest control poisons).
- Food should be stored off the ground on shelves to help keep premises clean, discourage pests and avoid water damage or contamination in areas where floors are wet cleaned.
- Food should not be stored in toilet facilities. It is also good practice to avoid storing food contact equipment and food packaging in toilet facilities.

Businesses should consider the appropriate storage of items that might subsequently come into contact with food or food contact surfaces. For example, containers that will be placed on food contact surfaces should be stored off the floor on shelves, to avoid contamination from the floor being transferred to the food contact surface from the underside of the container.

Storage areas should be kept clean and dry to prevent the accumulation of dirt, food waste, etc. that could result in the contamination of food (see clause 19). Storage areas should be kept free of pests that could contaminate food or damage protective packaging (see clause 24).

(b) the environmental conditions under which it is stored will not adversely affect the safety and suitability of the food.

The right storage conditions to keep food safe and suitable will depend on the food's characteristics (e.g. whether it is a dry good, a chilled food, fresh produce etc.) and its packaging. Some examples of environmental conditions that might adversely affect food safety or suitability are listed below:

Humidity

- Moist/damp conditions can encourage mould growth.
- Exposed dry foods can absorb moisture and deteriorate.
- Packaging material might deteriorate when exposed to moisture (e.g. metal rusting, or biodegradable plastic dissolving) resulting in food being exposed to contamination or spoilage.
- Moist conditions might encourage seeds to germinate and tubers to sprout, making the food unsuitable.

Heat

- Warm conditions favour the growth of pathogenic and spoilage microorganisms (noting there is a requirement to store potentially hazardous food under temperature control (see 6(2) below).
- Heat-sensitive foods can be spoiled by melting or softening.

Light

- Potatoes produce higher levels of toxic glycoalkaloids if exposed to light for prolonged periods.
- Some vegetables might produce shoots if exposed to light.
- Vegetable oils might change in chemical composition and deteriorate if exposed to light.

When food needs storage under particular conditions to prevent it becoming unsafe or unsuitable for its expected shelf life, it should be kept under those conditions. Food businesses should be guided by storage instructions provided by food manufacturers as to how food should be stored to retain its safety or suitability.

6(2) A food business must, when storing potentially hazardous food:

(a) store it under temperature control; and

To ensure pathogens and toxins do not make potentially hazardous food unsafe, the food must be stored under temperature control. Clause 1 explains 'potentially hazardous food' and 'temperature control'.

Storage temperature

Potentially hazardous food must be stored at 5°C or below or 60°C or above. As discussed under 'temperature control' (clause 1 Interpretation) the growth of all pathogenic bacteria is prevented at temperatures below -1.5°C or at 60°C or greater. Because some pathogenic bacteria, such as *Listeria monocytogenes*, can grow at 5°C or below, the time that potentially hazardous food is stored at refrigeration temperatures needs to be managed (see Storage time below). Food businesses may be able to demonstrate that a specific potentially hazardous food can be safely stored at temperatures above 5°C, because that food will support limited or no growth of certain pathogens at the nominated temperature. For example, the Australian Standard AS4696-2007 states that raw meat carcasses can be stored at 7°C (maximum surface temperature). Any storage instructions specified by a food's manufacturer should be followed.

Storage time

The length of time that a potentially hazardous food can be safely stored depends on the particular characteristics of the food, (e.g. see Appendix 1 and 2) including processing and packaging factors and the temperature at which it is stored.

Some considerations on refrigerated storage time for potentially hazardous foods are listed below for information.

- Keeping potentially hazardous ready-to-eat food for no more than 5 days at 5°C or below will restrict the growth of *L. monocytogenes* (Health Canada 2011, Ross 2011).
- Shorter refrigeration times might be advised for particular foods, because they present a higher food safety risk. For example, it is recommended that foods containing raw or low-cooked eggs are not kept for longer than 24 hours (Australia Egg Corporation Ltd, 2015).
- Longer refrigeration times may be acceptable for certain foods if the food business can demonstrate that foodborne pathogens will not be able to multiply to dangerous levels or produce toxins in that time.
- NSW Food Authority's *Sous Vide — Food Safety Precautions for Restaurants* provides guidance that restaurants limit the refrigerated storage of pasteurised sous vide foods to ten days unless a longer time has been scientifically validated. For cooked sous vide foods that are not pasteurised, a maximum of five days storage at 5°C is recommended.
- Guidance on particular foods is available in scientific resources (e.g. Cox and Bauler 2008 for cook chill foods) and Jurisdictional websites in Resources and References.

Identifying stock, for example by the use of date labels, is useful for businesses to keep track of how long food items have been stored.

General best practice for refrigerated storage

To make sure that cold food remains safe during storage, proper refrigeration is essential. For best practice, businesses should ensure refrigeration equipment is operating and used correctly using the following measures:

- Food temperatures are checked with a probe or infra-red thermometer to make sure the food itself is at the required storage temperature, rather than relying on the refrigerator's temperature gauge.
- The time that refrigerated food is left out of refrigeration is minimised, to keep the food as chilled as possible.

- Stock is regularly checked for date markings, and rotated and prioritised for sale or disposal, ensuring for example that older food is sold first and that food is not sold beyond its Use By date. If packaged food requires storage under refrigeration once it has been opened, the packaging should be opened in a way that keeps the date marking intact and the manufacturer's storage life and conditions should be followed.
- Refrigerated food is not repeatedly taken out and put back unnecessarily, to avoid multiple food warming periods.
- Refrigerators are not overstocked beyond the refrigerator's capacity to chill food to the required temperature, and to allow chilled air to circulate around all food items.
- Refrigerator doors are not repeatedly opened more than necessary or left open for extended periods, to avoid the temperature rising above the required level, and to avoid placing unnecessary stress on the refrigerator's cooling system.
- Refrigerators are regularly maintained and serviced to ensure they are running efficiently.
- Some food businesses may have temperature monitoring devices installed which provide an ongoing measurement of chilled storage.

(b) if it is food that is intended to be stored frozen, ensure the food remains frozen during storage.

If a food business intends to store food frozen, then the freezer used for this purpose must keep the food hard frozen. A temperature for frozen storage has not been specified, but food businesses should follow food manufacturer's storage instructions to maintain product quality and shelf life.

7 Food processing

The intended outcome is that food businesses ensure that only safe and suitable food is processed, and that food remains safe while it is being processed, by:

- assessing food before it is processed
- protecting food from contamination
- if necessary, reducing pathogens that may be present in the food to safe levels
- minimising the time that food remains at temperatures that permit the growth of pathogenic microorganisms, including during cooling and reheating.

Information on food microbiology and many food processes is available in technical references (e.g. Cox and Bauler 2008, Hocking 2003, ICMS 1996, Meat and Livestock Australia 2015) and Jurisdictional websites in Resources and References.

7(1) A food business must:

(a) take all practicable measures to process only safe and suitable food; and

A food business must ensure that the food it will process (and prepare) is safe and suitable for its intended use. 'Process', 'safe' and 'suitable' are defined in clause 1.

Practicable measures that can be taken by the food business include:

- sourcing ingredients from reputable suppliers
- specifying to the supplier the quality or safety parameters needed for the raw material or food ingredient (e.g. dried fruit must be free from stones; food must have no detectable *Salmonella*)
- having appropriate procedures in place when food is received (see clause 5)
- inspecting the food before processing to determine whether it is damaged, has deteriorated or perished
- if the food is potentially hazardous, determining whether the food has been kept at temperatures that minimise the growth of pathogenic bacteria
- removing contaminants that might be present on the food before use (e.g. by washing fruits and vegetables).

A food business would generally not be expected to conduct microbiological, chemical or physical tests on ingredients to determine their safety or suitability. However, testing may be necessary for food manufacturers where the quality of the ingredients is critical to the safety or suitability of the food being manufactured. This is especially important when the ingredient is being used in a food that will not be further processed to ensure its safety and suitability, for example if dried spices, herbs or other seasonings are added to a snack food after a heat processing step. In this case the food business should have assurance that such ingredients do not contain pathogens such as *Salmonella* and microbiological testing may be included as a part of a supplier assurance program.

(b) when processing food:

(i) take all necessary steps to prevent the likelihood of food being contaminated; and

The food business is required to take all necessary steps to prevent the likelihood of food being contaminated during processing.

Examples of steps that the business could take include:

- minimising contamination from food handlers by ensuring staff have the appropriate skills and knowledge for any food processes they use (see clause 3), including:
 - » correct use of food processing equipment
 - » good personal hygiene practices
- generally keeping food processing areas clean, well maintained and free of pests to avoid contamination from dirt and dust, pests and foreign objects such as glass and metal (see also clauses 19 and 24)
- preventing contamination from food processing equipment and utensils by ensuring:
 - » utensils and food contact surfaces of equipment are cleaned and sanitised before use, and between uses with raw food and ready-to-eat food (see clause 20)
 - » utensils are not stored in containers of water between uses unless it is very hot (60°C or more) or very cold (5°C or less), and the water is changed regularly, for example every hour
 - » parts of processing equipment that repeatedly contact food over the course of a day (e.g. slicers, blenders and liquidisers) are regularly cleaned and sanitised (see also clause 20)

- » probe thermometers are cleaned and sanitised between uses (see also clause 22)
- » food processing equipment is kept in good working order generally (see clause 21)
- preventing transfer of contamination from one food to another, by:
 - » not mixing or topping up different batches of food (see example below)
 - » processing ready-to-eat food in separate areas or at separate times to processing raw foods
 - » ensuring that utensils and equipment (chopping boards, slicing blades, etc.) used to prepare raw food are not used to prepare ready-to-eat food unless they have been cleaned, sanitised and dried
- preventing contamination by chemicals by ensuring chemicals used for cleaning, pest control, etc. are kept separate from food processing areas.

Some processes may pose an inherently higher risk of food contamination than others and so require extra care; for example, the preparation of fresh ready-to-eat foods that need a lot of handling (e.g. sandwiches).

A food business should consider the volumes of food being processed and ensure that all aspects of the food processing (including food handlers and equipment) can cope with those volumes. The potential for contamination at any part of the processing should be assessed and the business's operations adjusted to prevent the likelihood of food becoming contaminated.

Preventing food contamination during processing

1. Raw poultry does not need to be washed

A food handler is responsible for preparing raw chicken for cooking and washes the poultry in the sink as part of the preparation. This practice is potentially unsafe, as it is likely to result in pathogens such as *Campylobacter* and *Salmonella* being splashed onto the sink and surfaces nearby. These pathogens could then be transferred to other foods (e.g. salad prepared in the same area). While cooking will destroy the pathogens in the chicken, raw and ready-to-eat foods may not be further processed to make them safe before eating. To prevent cross contamination occurring, the food handler should not rinse the poultry.

2. Avoiding mixing of batches of food prepared on different days

At the end of the day's trading, a food business keeps its leftover chilled salads and dips, prepared that day, for use the following day. The leftovers are sealed in clean, sanitised containers; labelled with a sticker to indicate the date, and refrigerated. The next day, fresh batches of salads and dips are prepared with cleaned and sanitised equipment, and placed in containers separate from the leftovers. The business ensures that the leftovers are used first (by checking the sticker) and are not mixed with the fresh batches. This avoids transferring any contamination that may be present in the leftover batch of salad or dip to the new batch.

- (ii) where a process step is needed to reduce to safe levels any pathogens that may be present in the food — use a process step that is reasonably known to achieve the microbiological safety of the food.

The microbiological safety of food is usually achieved through heating processes such as cooking, pasteurisation and retorting as well as non-thermal processes such as high pressure processing and irradiation (where permitted under Standard 1.5.3 — Irradiation of Food). Other processing steps used to make food safe include drying, salting, pickling and fermenting or a combination of these.

The process step needed to reduce or eliminate pathogens in a food will depend on the nature of the food business and the food handling operations it undertakes. 'Reasonably known' has been included to recognise that a food business should only use a process step that is known and it is reasonable to believe this step will achieve the microbiological safety of the food. This means the process used is based on knowledge of the critical limits (such as temperature, time, pH, water activity etc.) that will prevent, eliminate or reduce the food safety risk to an acceptable level. For example, if cooking of a food is required to ensure its safety, the combination of cooking temperature and time must be sufficient to reduce pathogens associated with that food to safe levels. A guide to processing limits for a range of processes (e.g. acidification, cooking, pasteurisation, sous vide) is provided in Appendix 3.

Processing requirements for some foods, including limits or steps that must be controlled for microbiological safety, are specified in the Food Standards Code:

- Standard 4.2.4 — Primary Production and Processing Standard for Dairy Products specifies time and temperature parameters for the thermal pasteurisation of milk and dairy products and processing controls for cheese and cheese products.
- Standard 4.2.3 — Production and Processing Standard for Meat specifies processing controls to be managed for uncooked comminuted fermented meat including the use of a starter culture, pH reduction, time and temperature of fermentation and water activity.
- Standard 4.2.5 — Primary Production and Processing Standard for Eggs and Egg Products specifies time and temperature parameters for the pasteurisation of egg pulp, liquid egg yolk and liquid egg white.
- Standard 4.2.6 — Production and Processing Standard for Seed Sprouts specifies that processing must include a decontamination step.
- Standard 2.3.1 — Fruit and Vegetables requires all fruit and vegetables in brine, oil, vinegar or water, other than commercially canned fruit and vegetables, to have a pH no greater than 4.6 (see example below).
- Standard 2.5.3 — Fermented Milk Products requires fermented milk and yoghurt to have a pH of 4.5 or less.

Many foods will not be subject to a pathogen reduction processing step by a food business because they are intended to be eaten raw, for example fruits and vegetables, fresh juices, raw meats and seafood and raw nuts.

Processes used to ensure food safety

1. Cooking chicken

A food business cooks whole chickens for retail sale. The business has established that the time required to cook the chickens is around 80 minutes and requires the cooking time and temperature to be monitored and recorded to ensure that the chicken is cooked safely. The person responsible for cooking the chicken has the required knowledge that a chicken is sufficiently cooked when its internal temperature has reached 75°C. At 80 minutes cooking time she checks the temperature of a chicken by placing a clean and sanitised probe thermometer into the centre through the inner thigh area and records the temperature. If 75°C has not been reached, the cooking time is extended and the temperature again checked and recorded.

2. Raw egg condiments (e.g. aioli, mayonnaise, etc.)

A food business prepares its own raw egg condiment. Having determined that it does not wish to use pasteurised egg in place of raw eggs, the business first ensures that the eggs it purchases are stamped, uncracked and clean. The egg yolk is separated from the white using a sanitised egg separator. The yolk is acidified (e.g. with lemon juice or vinegar) to a pH of 4.2 or lower (to inhibit *Salmonella* growth) and then blended with other desired ingredients. The prepared sauce is placed into a clean and sanitised container and then into a refrigerator until required. The business discards any unused sauce at the end of that day's trade.

3. Acidification of vegetables in oil

A food business prepares a selection of preserved vegetables in oil. Because the vegetables are packed in oil and sealed in jars or bottles, this creates a low-oxygen environment that favours the growth of pathogens such as *Clostridium botulinum*, which can cause botulism. While oil prevents oxidation and discolouration of vegetables in the containers, it does not kill microorganisms. To inhibit pathogen growth, the vegetables are acidified with vinegar to a pH of 4.6 or lower, before the oil is added. Any herbs or spices to be added to the vegetables are also either similarly treated with vinegar or are thoroughly dried (to reduce their water activity) before being mixed with the vegetables.

7(2) A food business must, when processing potentially hazardous food that is not undergoing a pathogen control step, ensure that the time the food remains at temperatures that permit the growth of infectious or toxigenic microorganisms in the food is minimised.

For potentially hazardous foods that are not undergoing a pathogen control step such as cooking, the time that food is kept at temperatures that permit the growth of pathogenic microorganisms must be kept to a minimum during processing.

Subclause 7(2) recognises that it may be necessary to keep potentially hazardous food at temperatures between 5°C and 60°C during preparation. However the time that food is kept at these temperatures must be monitored to ensure that pathogenic microorganisms that may be present do not grow to unsafe levels. Where food is outside refrigeration several times during preparation, it is important to note and add these times together to ensure that they do not exceed safe limits. As a general rule, the **total** time that a ready-to-eat potentially hazardous food can be at temperatures between 5°C and 60°C is 4 hours (see Appendix 2, including examples).

Example

Sandwiches with potentially hazardous fillings out of refrigeration for minimum time

A catering business prepares sandwiches that have potentially hazardous fillings including meats such as roast beef. At the beginning of the day sandwich ingredients are prepared and the beef is removed from refrigeration, sliced and re-refrigerated. To minimise the time the beef is out of refrigeration the business ensures this takes no longer than 30 minutes. Later the sliced beef is again taken out of the refrigerator to be made into sandwiches. Sandwich preparation takes 30 minutes. The total time the roast beef and other potentially hazardous fillings have been at temperatures between 5°C and 60°C is kept to 1 hour. The accumulated total time that the roast beef is out of refrigeration should not exceed 4 hours (see Appendix 2). To achieve this, the business refrigerates the sandwiches until they are required for display at room temperature and ensures that the time they remain on display does not exceed three hours. At the end of the three-hour display, any unsold sandwiches are then discarded.

Even if potentially hazardous food will receive a pathogen control step (e.g. raw meat and fish), it is still important to minimise the time the food is kept at temperatures that permit the growth of pathogenic microorganisms. This prevents the production of bacterial toxins in the food that will not be destroyed by cooking as well as the growth of spoilage microorganisms.

Anecdote

Food poisoning involving raw egg aioli

A group of work colleagues fell ill with gastroenteritis from *Salmonella* poisoning after eating lunch at a café. All had ordered burgers or chips served with aioli sauce. Further investigations found that the café staff had prepared the aioli the previous morning in a large tub, making enough to last several days. The aioli was left out on the bench for the first day, used as needed to fill up sauce bottles, then refrigerated overnight. The tub was then brought out onto the bench again the next day. The aioli contained raw eggs and had not been processed in any way that would have destroyed pathogens present, particularly *Salmonella*. These pathogens were able to grow rapidly each time the sauce was left at room temperature, and over time made the aioli unsafe to eat.

After the incident, the business was advised to seek an alternative to using raw eggs (i.e. a pasteurised alternative) or if not possible to substitute, to change its practices to ensure the aioli is produced safely and kept under strict temperature control. The business responded by:

- using pasteurised egg for preparing aioli; or
- if only raw eggs can be used:
 - » preparing a smaller amount of aioli each day — enough only to last that day
 - » preparing the aioli as per Example 2 above
 - » immediately after preparation, dispensing the aioli into clean and sanitised sauce bottles that are kept refrigerated until needed
 - » discarding any aioli left unused at the end of the day (as recommended by AECL 2015).

Thawing food

Processing includes thawing and businesses will need to ensure that, when frozen potentially hazardous foods are thawed, the thawed portion of the food is kept for a minimum time at temperatures that support the growth of foodborne pathogens.

There are several ways that frozen potentially hazardous food can be thawed:

- **Refrigeration:** Thawing food under refrigeration maintains it at 5°C and below and will minimise the potential for the growth of pathogenic microorganisms. It may take several days for large food items to thaw completely at this temperature, requiring forward planning and adequate refrigeration space.
- **Running water:** Food may be thawed more quickly by submerging under cool running water. This method requires adequate sink space and sufficient water flow to ensure thawing is as rapid as possible. Foods susceptible to water damage should be contained within impermeable packaging. It is important to monitor the food and remove it as soon as it is thawed to ensure it is not kept at temperatures above 5°C.
- **Microwave:** Thawing in a microwave oven is the fastest option; however, the suitability of this method will depend on the size and nature of the food item to be thawed. It may be difficult, for example, to achieve complete thawing of certain meats without partial cooking and reduction in food quality.
- **As part of the cooking process:** Thawing foods as part of the cooking process is appropriate where thorough and timely cooking can be ensured. Foods typically cooked from the frozen state include single portion foods such as meat patties and chicken nuggets as well as pizzas and vegetables. It is safer to completely thaw larger portions of frozen raw foods (e.g. chickens and turkeys) before cooking to ensure the internal cooking temperature required is reached.
- **Room temperature:** Thawing food at room temperature is faster than under refrigeration; however, there is a greater likelihood that the thawed portion of the food will reach temperatures greater than 5°C. The thawing process should be monitored to ensure the time that thawed potentially hazardous food is at temperatures greater than 5°C is minimised and safe time limits are not exceeded (see Appendix 2).

Frozen raw meat, poultry and seafood

There are two critical food safety issues when thawing frozen raw meat, poultry and seafood:

- ensure that juices resulting from thawing do not contaminate other foods during the thawing process
- ensure these foods are thawed completely before cooking unless they can be safely cooked from a frozen or partially frozen state (e.g. if the portion size will quickly defrost to enable heat penetration and thorough cooking).

Frozen raw quantities of fish that are capable of producing histamine (See Fish in Appendix 4) should always be thawed in a refrigerator or microwave to minimise the production of histamine in the fish. Cooking does not destroy histamine.

7(3) A food business must, when cooling cooked, potentially hazardous food, cool the food:

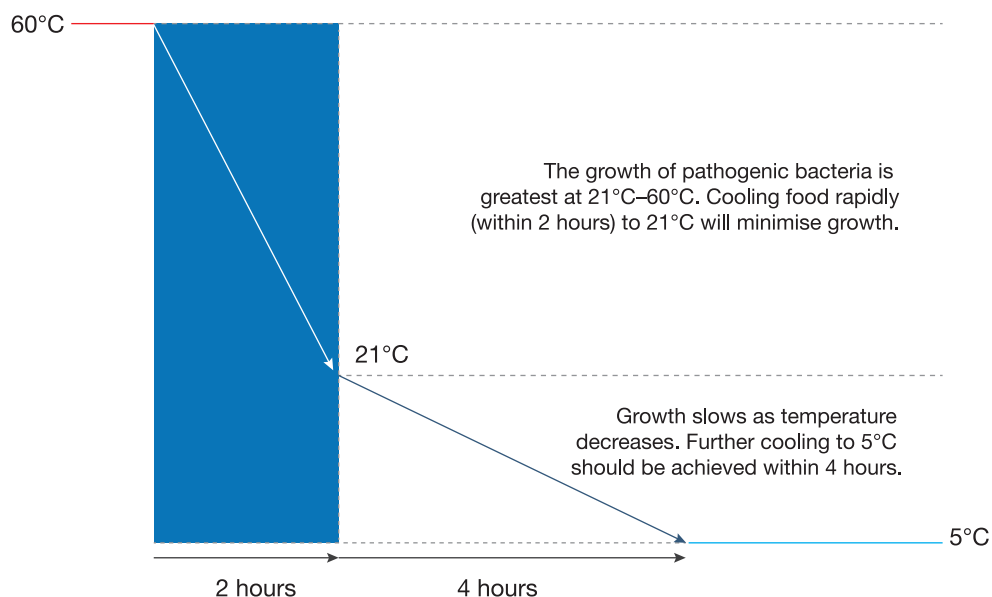
- (a) within two hours — from 60°C to 21°C; and
- (b) within a further four hours — from 21°C to 5°C,

unless the food business demonstrates that the cooling process used will not adversely affect the microbiological safety of the food.

The cooling of cooked potentially hazardous food needs to be as quick as possible to prevent the growth of pathogenic bacteria to unsafe levels. The less time that cooked potentially hazardous food remains at temperatures between 5°C and 60°C during the cooling process, the less opportunity there will be for pathogenic bacteria to grow. Pathogenic bacteria may be present in cooked food from spores and vegetative (live) cells that survive the cooking process.

Cooking will not destroy the spores of the foodborne pathogens *Clostridium perfringens*, *Clostridium botulinum* and *Bacillus cereus*. Rather, cooking can activate spores to become vegetative cells, which are then able to grow. If cooked potentially hazardous food is left to cool too slowly, for example at room temperature or in large volumes in a cool room, these vegetative cells can grow to dangerous levels. Subsequent heating of the food may not reduce high numbers of bacteria and does not destroy bacterial toxins that may be produced.

The specific cooling times and temperatures of this clause have been adopted from the US Food Code and are based on the control of spore-forming bacteria. *C. perfringens* can multiply quickly at elevated temperatures, with growth being fastest between 43°C and 47°C. *B. cereus* grows fastest in the temperature range 30°C to 40°C. To avoid providing ideal conditions for these bacteria, the cooling process used by the food business must be able to reduce the food temperature from 60°C to 21°C within 2 hours. Cooling to 5°C must then be achieved within a further four hours to restrict the growth of other bacterial pathogens that may be present (see diagram). The total time taken for cooling only applies once the temperature of cooked potentially hazardous food has dropped to 60°C following cooking.



Factors affecting cooling

The procedure used by the food business to cool potentially hazardous foods will depend on the following factors:

- The size or amount of the food to be cooled — large amounts will cool slower than small amounts, and cooling will be fastest on the food's surface and progressively slower towards its centre. As such, large volumes of food may not sufficiently cool all the way through within the times and temperatures specified.
- The density of the food (i.e. how solid or liquid a food is) — the denser the food, the slower it will cool.
- The cooling capacity of the equipment – for example, blast chillers will cool food much faster than refrigerators. Note that over stocking a refrigerator or placing large amounts of hot food into a refrigerator will reduce its overall cooling capacity.

With these factors in mind, cooling times can be reduced by:

- cooking and cooling smaller amounts or portions of food
- placing the food into large shallow containers (e.g. 5 cm deep) to cool
- using rapid-cooling equipment (e.g. blast chiller)
- stirring liquid foods frequently (ensuring the stirring utensil has been cleaned and sanitised)
- using water or ice water baths
- allowing cool air to circulate around the container of food to be cooled — potentially hazardous food should be cooled on racks and not on the floor of a cool room
- adding ice as an ingredient.

Monitoring the cooling process

It is important that the temperature of the food is monitored during cooling to ensure the procedure used is effective. Food temperatures should be checked with a clean, sanitised thermometer at the part of the food that will take the longest to cool, usually the centre of the food. It is good practice to record the temperatures and the times the temperature was checked to make sure the cooling process used meets the specified requirement. An example template that may be helpful for recording cooling times and temperatures is provided in Appendix 8. Further information on using thermometers and measuring the temperature of food is provided under clause 22.

Cooling food safely

1. Rice

A restaurant's usual practice is to cook 12 cups of rice (the contents of a rice-cooker) daily and cool this rice in a container in the coolroom overnight for use the next day. However, checking the temperature of the centre of the cooked rice as it is cooling shows that the rice is not actually being cooled to 21°C in the first 2 hours and then to 5°C over the next 4 hours as specified by subclause 7(3). The food business needs to work out a faster cooling method to ensure the rice is safe to eat. It determines that if it divides the cooked rice in half and spreads each half on two shallow trays for cooling, the rice can be correctly cooled all the way through within the 6-hour cooling requirement. The business documents this process in its operating procedure and consistently uses this new cooling method for rice.

2. Gravy

A food business prepares a large batch of gravy in the morning to use later that day. The pan of gravy is placed in an ice slurry and then stirred regularly, checking the temperature several times over the next few hours to ensure cooling is within required timeframes.

Alternative cooling processes

Extended cooling times may be necessary where large cooked meats or other products need to be cooled. Large volumes of food will not cool to below 5°C within the 6-hour requirement unless the mass and volume of the food can be decreased. If this option is not available, the business will need to put in place an alternative cooling system that will not adversely affect the microbiological safety of the food. Clause 25 outlines how a food business can demonstrate that a cooling process will not adversely affect a potentially hazardous food.

Alternative cooling processes have been established for cooked cured and uncured bulk meat products based on sound scientific evidence (see Appendix 5).

7(4) A food business must, when reheating previously cooked and cooled potentially hazardous food to hold it hot, use a heat process that rapidly heats the food to a temperature of 60°C or above, unless the food business demonstrates that the heating process used will not adversely affect the microbiological safety of the food.

This requirement only applies to cooked potentially hazardous food intended for hot holding (e.g. for holding in a bain marie, pie warmer etc.). Cooked and cooled food that is reheated for immediate consumption may be served at any temperature.

As discussed under subclause 7(3), pathogenic bacteria may be present in cooked food from spores and vegetative cells that survive the cooking process, as well as from contamination that might occur after cooking. Rapid reheating to 60°C or above is therefore required to minimise the time that the food is at temperatures that allow these bacteria to grow.

'Rapidly' heating food

'Rapidly' has not been defined, but the reheating process should be as quick as possible. The time needed will depend on the volume of the food, its density and the heat process used (e.g. stove top, oven, microwave). Based on the US Food Code, the time the food is between 5°C and 60°C should not exceed 2 hours.

Equipment designed only for hot holding, such as bain maries and many pie warmers, should not be used for reheating food (see Standard 3.2.3 subclause 12(1)). Foods should be quickly heated to an internal temperature of at least 60°C before being transferred to the hot-holding equipment.

A food business may use an alternative heating process if it can demonstrate that the alternative process does not compromise the microbiological safety of the food.

Food businesses are not required under this standard to heat previously cooked and cooled potentially hazardous food to temperatures higher than 60°C. However, other requirements (e.g. food safety programs) may apply.

Repeated cooling and reheating

It is best practice that potentially hazardous food that has already been reheated not be cooled and reheated a second time. This avoids the food being at temperatures that support the growth of pathogenic bacteria four times (from cooling, heating, re-cooling and reheating again). If pathogens were present in the food, they could multiply to dangerous levels.

Example

Slow reheating in a bain marie is a food safety issue

A food business places a precooked and chilled meat dish into a bain marie to reheat it and hold it hot for a buffet dinner. After two hours, the temperature is checked and shown to be still only 46°C. This practice is unsafe, as foodborne pathogens such as *Clostridium perfringens* and *Bacillus cereus* could grow to dangerous levels at this temperature.

The business should heat the dish quickly to at least 60°C in an oven or microwave before placing it in the bain marie unit, ensure the thermostat of the unit is set at 60°C or above to maintain temperature control, and regularly check the food's temperature with a probe thermometer. For best practice, any reheated food left over on the day should not be refrigerated again, but disposed of.

8 Food display

The intended outcome is that all food on display for sale or service is:

- protected from contamination
- for potentially hazardous food, either maintained at temperatures that minimise the growth of pathogenic microorganisms or displayed for a time that does not allow dangerous levels of pathogens to grow.

While all food should be displayed in a way that keeps it safe and suitable, extra care should be taken with:

- unpackaged food, because it is generally more vulnerable to exposure to hazards
- ready-to-eat food (see clause 1), because it will not be further treated to remove any contamination before it is eaten — additional requirements are discussed in subclauses 8(2) and 8(4)
- potentially hazardous food (see clause 1 and Appendix 1), because if it is contaminated with pathogenic microorganisms, these could grow to unsafe levels in the food during display — additional requirements are discussed in subclause 8(5).

8(1) A food business must, when displaying food, take all practicable measures to protect the food from the likelihood of contamination.

‘Contamination’ is defined in Standard 3.1.1. Food might not be identifiable as contaminated by its look, smell or taste, so to ensure displayed food stays safe it must be protected from the likelihood of contamination.

Packaged food

Displayed food that is packaged will generally be protected from contamination by its packaging. However, businesses should make sure that packaging is suitable for use with food (see clause 9) and remains intact so the food stays properly protected. Any food that might be contaminated because packaging is unsuitable or damaged should be removed from display and disposed of as per clause 11.

Unpackaged food

If displayed food is not packaged, the business must take steps to protect it from contaminants. These steps should be appropriate to the nature of the food and the risk posed. For example, ready-to-eat food that is unpackaged presents a greater risk than food that is not ready-to-eat (because it will not be further treated to remove any contamination before it is eaten); extra precautions are discussed below.

Practicable measures to protect food on display

The business should consider the type of food on display (and its intended use), the design of display units and the display location to ensure the food is appropriately protected. Practicable measures could include:

- locating displays to prevent contamination by:
 - » draughts that might blow in dirt, insects, chemicals, etc. (e.g. display in cabinets; away from open windows, doors or fans; or protect with erected wind shields if outside)
 - » insects or chemicals dropping from pest control devices (e.g. display away from sprays and zappers)
 - » direct contact with domestic animals (in an outdoor setting or home) and children (e.g. display at a height that is out of reach)

- covering food by using:
 - » food-grade cling wrap, bags or paper strips
 - » removable covers (such as cloches or chafing dishes)
 - » lidded containers
 - » display cabinets
- separating ready-to-eat foods from raw foods (e.g. having physical barriers in place or separate displays)
- avoiding topping up dishes of food on display, to prevent cross contamination between batches of food (see also clause 7 (1)(b))
- ensuring display platters, containers and benches are made of smooth food-grade material that can be effectively cleaned and sanitised (as per Standard 3.2.2 subclause 20(1) and Standard 3.2.3 clause 12)
- using signs in display areas to instruct customers as needed.

8(2) A food business must, when displaying unpackaged ready-to-eat food for self-service:

Being readily accessible to customers, unpackaged ready-to-eat food for self-service is particularly vulnerable to contamination from people's hands, sneezes, coughs, etc. If, for example, the food becomes contaminated with certain pathogenic microorganisms from a customer, such as noroviruses, then someone that consumes that food could become ill from those microorganisms.

Multiple approaches are required to keep this type of food safe during display; namely supervision, provision of separate serving utensils and physical barriers (specified below under paragraphs (a), (b) and (c)).

This subclause applies to all ready-to-eat products (see clause 1) in self-service displays, such as:

- salad and sushi bars and smorgasbords
- olive and antipasto bars
- breads and other bakery products
- fruit prepared (e.g. washed) for immediate eating
- confectionery
- toppings for desserts such as ice creams and yoghurts
- snack food provided for patrons in pubs, clubs, hotels (e.g. shelled nuts)
- taste-testing samples.

(a) ensure the display of the food is effectively supervised so that any food that is contaminated by a customer or is likely to have been so contaminated is removed from display without delay;

Supervision is essential to discourage customers from handling or tampering with exposed food and to make sure prompt action can be taken if needed. The level of supervision needs to ensure that if someone has or might have contaminated food, that food can be quickly removed.

The business should consider the best way to supervise food, depending on the type of food, its accessibility, and the traffic flow of customers. Food may be supervised by staff present at the display or by the use of surveillance cameras in real time. Displays might need higher levels of supervision, for example, at peak customer times.

Note that supervision is only required when customers are accessing food from the display.

Unpackaged food displayed for self-service in tamper-resistant equipment or containers does not need to be supervised (see subclause 8(3) below).

(b) provide separate serving utensils for each food or other dispensing methods that minimise the likelihood of the food being contaminated; and

The business must provide separate serving utensils or other dispensing methods for each displayed food. This minimises the likelihood of people touching the food and of contamination from one food being transferred to another. Examples of utensils and other dispensing methods include equipment such as tongs, serving spoons and forks, toothpicks, paper wraps and plastic bags that are provided for customers to select food without touching it.

Other measures to be considered include:

- to avoid contact between the serving utensil's used handle and the food, utensils could be placed in a clean and sanitary place next to the food, or utensils with long handles could be provided, so that handles do not rest on the food
- single use utensils and disposal containers could be provided for taste testing samples.

If containers are provided for food to be dispensed into, it is good practice to store these upside down to avoid aerosol droplets or other foreign matter falling in.

(c) provide protective barriers that minimise the likelihood of contamination by customers.

Protective barriers must be provided to minimise the likelihood of unpackaged ready-to-eat food becoming contaminated, where such contamination is likely to compromise the safety and suitability of food. A risk-based approach should be taken with the type of barrier used depending on the food and the nature of customer interaction, as not all interactions will likely result in food becoming unsafe or unsuitable.

Ideally, a protective barrier should be provided by permanent display units particularly where food is regularly displayed from a permanent site. These units should provide a guard, self-closing lid or similar barrier that minimises the chance of food being directly touched by customers and that protects it from customer aerosols (e.g. coughs and sneezes). Barriers should be placed at a height or angle that prevents customer aerosols readily landing on food.

Permanent barriers might not be practicable in some cases, such as for temporary displays.

Other ways that displayed unpackaged ready-to-eat food could be protected from customer contamination include using dishes with removable covers. If covers are used, they should be kept available so they can be placed back on the food once customers have served themselves.

Displays of unpackaged ready-to-eat food for self-service

Self-serve bread

A business displays bread loaves and rolls for customers to serve themselves. To make sure the displayed food is kept safe from contamination, the business takes the following actions:

1. A person is nominated to supervise the area.
2. Products are wrapped in paper bags or wide strips of paper to avoid direct handling.
3. Tongs are provided for customers to pick up items not covered by paper.
4. Bags are provided for customers to place products in.
5. Signage is placed in the display to instruct customers to use tongs and bags.

Antipasto bar

A business displays sliced prosciutto, olives, sun-dried tomatoes and other antipasto products for customers to serve themselves. To make sure the displayed food is kept safe from contamination, the business takes the following actions:

1. A person is nominated to supervise the area.
2. Products are displayed in dishes under a permanent guard that is angled and at a height that minimises exposure to customers' aerosols.
3. Separate tongs and serving spoons with long handles are provided for each product for customers to select food.
4. Containers of several sizes are provided, placed upside down, for customers to place products in.
5. Signage is placed in the display to instruct customers to use separate utensils and containers.
6. All unsold products are covered with cling wrap or placed in containers at the end of the day and stored for sale the next day.

8(3) Subclause (2) does not apply to food in tamper resistant equipment or containers.

Unpackaged food displayed for self-service in tamper-resistant equipment or containers is not required to be supervised, or have separate serving utensils or protective barriers. An example is confectionery dispensers where the customer can only access the confectionery being bought.

8(4) A food business must not display for sale on any counter or bar, any ready-to-eat food that is not intended for self-service unless it is enclosed, contained or wrapped so that the food is protected from likely contamination.

Unpackaged ready-to-eat food displayed on counters and bars is vulnerable to contamination, particularly from customers' hands and aerosols (see subclause 8(2)). It must be displayed in containers, wrapped or enclosed in some other way so it is not left exposed. This subclause applies to ready-to-eat food that is displayed but is not for self-service.

Example

Displaying muffins and slices on café counter

A café prepares fresh muffins and slices to sell and displays them on the bench in open baskets and plates. They are not for self-service. This open display exposes the food to potential contamination by customers, and dust and insects. The business should protect the food from contamination, for example by wrapping it or placing it under covers or in a display case.

8(5) A food business must, when displaying potentially hazardous food:**(a) display it under temperature control; and**

Potentially hazardous food must be displayed at temperatures that prevent any pathogenic microorganisms present growing to unsafe levels. This means maintaining it at or below 5°C or at or above 60°C unless the food business can demonstrate that the alternative practice it uses is safe.

It might sometimes be impractical to display potentially hazardous food either at or below 5°C or at or above 60°C. For example, a business may freshly prepare large amounts of food for sale over a lunch period, but may not have a display cabinet of appropriate size to keep the food at or below 5°C or at or above 60°C. Another example is a business may wish to display hot food at temperatures below 60°C to prevent the food from drying out. For these examples the businesses may demonstrate they can safely display potentially hazardous food at other temperatures, for example by using time as a control (e.g. see Appendix 2).

Factors to be considered when displaying potentially hazardous food in hot and cold displays include:

- Food on display might not be the same temperature as the display equipment. It is good practice to check the food's actual temperature (using a clean sanitised probe or infrared thermometer), rather than assume it is being kept at the same temperature as the display unit.
- The effectiveness of cold plate refrigeration would likely be reduced by the use of foam or cardboard mats under food trays, or when plates are stacked high under bright lights.
- The use of ice to chill food should ensure that all food for display is sufficiently chilled through adequate contact. For example, displaying a tub of prawns where only the base layer has contact with ice may not keep it sufficiently chilled, depending on the depth of product — the prawns should be in direct contact with ice or the tub deeply immersed in ice to ensure the prawns are chilled properly.
- Bain maries, pie warmers, etc. designed for hot-holding displays should only be used to keep hot food hot and not to heat up cold food. Heating cold food in this type of equipment could result in the food being held at temperatures that allow pathogenic microorganisms to grow to unsafe levels. See reheating under subclause 7(4).

It is good practice to keep records of the times and temperatures that food is displayed. This helps with checking that display equipment is working properly and that temperatures are safe, and with ensuring corrective action is taken if needed. An example temperature record sheet is in Appendix 8.

Display of potentially hazardous food

Displaying cut melons

A market stall cuts rockmelons (cantaloupes), wraps them in plastic and displays them for sale at ambient temperature alongside whole fruit and vegetables. There is evidence that pathogenic bacteria such as *Salmonella* can be present on and in rockmelon skin and can cause foodborne illness (e.g. see Munnoch et al 2009). Because the rockmelon has been cut, bacteria from the skin might have been transferred to the flesh, which can support the growth of pathogenic microorganisms. The cut fruit is considered potentially hazardous and should ideally be displayed chilled (at or below 5°C), or otherwise displayed using time as a control (see Appendix 2).

Displaying food in hot-hold display

A takeaway stall displays hot curries and rice using bain marie units. These display units can keep the food at temperatures above 60°C, but because the food dries out quickly the business sets them at about 45°C. This practice may be unsafe because it holds food at temperatures that may allow pathogenic bacteria to grow in the food. The business should raise the temperature so the food is held at 60°C or otherwise ensure its practice is safe, for example by using time as a control (see Appendix 2).

(Note that while food held at 60°C or hotter for any length of time will remain safe to eat, the food's quality may be affected over time.)

Displaying Chinese roast poultry and pork

A business prepares traditional Chinese roast ducks, chicken and pork to sell. The cooked poultry and pork is usually displayed by hanging the meat at ambient temperature in the shop. This practice is generally considered safe (for the determined shelf life) because the processes of scalding, surface drying and glaze roasting creates a product that is not potentially hazardous. However, sometimes the processed poultry or meat is sliced and put on display. Once sliced, the surface protection is lost and the product becomes potentially hazardous food, so sliced poultry and pork must be displayed under temperature control.

Displaying boutique bakery products for self service

A boutique bakery sells a variety of savoury and sweet buns, quiches and rice rolls through self-service. Some of the products containing rice, egg, meat or fresh cream are potentially hazardous (see Appendix 1). All the food is displayed at room temperature in cabinets with sliding doors and customers are provided with trays and tongs. Displaying these foods at ambient temperatures is potentially unsafe because pathogens may grow or produce toxins to dangerous levels in the food. Ideally, the business should display the potentially hazardous foods at 5°C or below, or at 60°C or above. An alternative practice that can be demonstrated to be safe, such as the 2-hour/4-hour rule, could also be used (Appendix 2). The business should appropriately supervise self-service operations to minimise the risk of food becoming contaminated from customers' hands, coughs, etc.

(b) if it is food that is intended to be displayed frozen, ensure the food remains frozen when displayed.

If a food business intends to display food frozen, then the freezer it uses for the display (e.g. a frozen-food cabinet) must keep the food hard frozen. A specific temperature is not required — frozen food that feels hard is considered sufficiently frozen. However, food businesses should follow the manufacturer's storage instructions to maintain the product's quality and shelf life.

9 Food packaging

The intended outcome is that if food is packaged:

- it is packaged in a material that is fit for that purpose
- it is not contaminated by the packaging material or during the packaging process.

9 A food business must, when packaging food:

(a) only use packaging material that is fit for its intended use;

A food business should not place packaging materials in contact with food until it has established that the material is appropriate to be used for this purpose. Assurance that the packaging material is safe for use on food can be obtained from the material's manufacturer or supplier. Some packaging materials, for example some plastic containers, may have imprinted symbols to indicate they are safe for food, freezing, microwaving or use in dishwashers.

The following factors may affect whether a packaging material is fit for its intended use:

- the type of food being packaged (e.g. certain materials may not be suitable for acidic foods)
- the time period that the food will be in contact with the packaging
- environmental conditions the material will encounter (especially temperature and humidity)
- processes the material will encounter during its use with the food (e.g. heating, freezing, cleaning and sanitising)
- whether the packaging material contains recycled material, is being reused or re-purposed (i.e. used for a different purpose to its first use).

The food packaging must comply with the following:

- requirements in Standard 1.1.1 – Structure of the Code and General Provisions in relation to articles and materials in contact with food (previously covered by Standard 1.4.3 — Articles and Material in Contact with Food which is now removed from the Code)
- specific requirements related to reducing risks of contamination to food in Standard 1.4.1 — Contaminants and Natural Toxicants outlined in paragraph (b) below.
- labelling requirements in standards in Part 1.2 of the Food Standards Code.

Example

Ensuring containers are safe for use with food

A food business needs plastic storage containers that are suitable for freezing and microwaving food. It sources containers from a reputable food packaging supplier, and checks that the containers are specifically described as microwave- and freezer-safe.

(b) only use material that is not likely to cause food contamination; and

'Contamination' is defined (Standard 3.1.1 Interpretation). A packaging material must not compromise the safety and suitability of food that comes into contact with it. Packaging material might contaminate food in three ways:

- if chemicals from the packaging leach into food
- if microorganisms, dirt or other foreign material that may be contaminating the packaging material itself transfer to food
- if parts of the packaging itself break off into the food, for example glass or wood splinters.

Substances used to make food packaging

The fact that chemicals in food packaging material can migrate into food is scientifically well established (de Fatima and Hogg 2007, Robertson 2013). So the chemicals used to make food packaging (including added components such as moisture- or oxygen-absorbing sachets, etc.) should present no known toxic hazards to the consumer of the food. The manufacturer of the packaging material must minimise the likelihood of chemicals migrating into the food and comply with any specific requirements, including Standard 1.4.1 — Contaminants and Natural Toxicants, which specifies maximum limits allowed in foods for certain food packaging chemicals (e.g. for tin in canned foods, and acrylonitrile and vinyl chloride — used in the production of plastics — in any food).

For chemicals with no legal limit specified, the packaging manufacturer or supplier must still ensure that the packaging material will not endanger the safety and suitability of the food in contact with it. Existing standards may be useful for establishing safe chemical levels. The Australian Standard AS2070-1999 *Plastic Materials for Food Contact Use* is not mandatory but provides guidance on the production of plastic materials, colourants, printing inks, coatings and other substances for food contact use. It also refers to regulations in the United States (US FDA Code of Federal Regulations) and the European Commission Directives.

Recycled and reused materials

Recycled materials may be used for food packaging provided they are suitable for food contact use and will not contaminate the food. As for any food packaging, the food business should consider potential risks posed to food safety and suitability from recycled or reused materials; for example:

- Some recycled materials (e.g. newspaper) may contain inks or other chemicals that are not safe for use with food. However, some packaging comprised of recycled material may include added protection (e.g. an inner bag or coating) to prevent these chemicals leaching into food.
- Repeated use of some packaging material may result in food becoming contaminated from chemicals released as the packaging deteriorates. Cleaning and sanitising processes may affect the properties of the packaging if it has not been designed for repeat use (see also clause 23).

The Australian Packaging Covenant website has useful guidance on recycled materials used for food contact — see Resources and References.

Glass and breakable materials

Glass or other fragile materials used for food packaging should be able to withstand reasonable handling, to avoid breakages contaminating the food.

Protecting food packaging from contamination

To prevent food becoming contaminated from packaging that is not clean and free from foreign matter, the packaging material must be protected from contamination. For example, it should be stored in containers or appropriately covered, in a clean area secured away from toxic chemicals, pests and animals. It should also be free from defects such as chips, splinters or crevices that could harbour debris or microorganisms.

Any packaging material that might be contaminated must not be used in contact with food.

Example

Protecting food packaging material during storage

A food business is storing food packaging material in a shed at the back of the premises. The shed is not clean nor vermin proof. The business needs to find a more appropriate place to store the packaging material; for example, they could use a dedicated food (or food packaging) storage area. Keeping the packaging free from dirt, insects or animal waste will prevent contamination transferring to food packed in it in the future.

Food containers should not be used to store toxic chemicals as a general rule, regardless of whether the containers will be reused for food or not. Otherwise, the chemical could be accidentally used in food or served to customers and cause illness. The storage of poisons in food containers may breach state and territory poisons legislation.

(c) ensure that there is no likelihood that the food may become contaminated during the packaging process.

During packaging the food may be exposed to contamination from:

- the packaging equipment itself (e.g. if it is dirty or contaminated from previous food contact)
- parts of the equipment (e.g. spitting machinery oil or loose ball bearings)
- dirt, insects, chemicals or other foreign matter at the premises (e.g. insects falling from a bug zapper, overhead fans blowing dust onto food) — see example below
- food handlers contacting the food directly (e.g. from poor hygiene practices) or indirectly (e.g. if their hair or jewellery fall into the food).

To prevent contamination during the packaging process, businesses should ensure the packaging and associated equipment is well maintained (as per clause 21), clean and if necessary, sanitised (as per clause 20). Compliance with other clauses of the food safety standards, such as ensuring food handlers have appropriate skills and knowledge to package food (clause 3), and exercise good hygiene practices (clause 15) will assist with compliance with this clause.

Example

Contamination of food during packaging

A food business packages a variety of food products. During packaging, a food handler notices that dead insects occasionally fall into the exposed food from bug zappers located in the packaging area. To avoid insects contaminating the food, the business relocates the bug zappers well away from any exposed food or packaging.

Doggy bags — information on the use of containers for providing customers with leftover food is provided in Jurisdictional websites in Resources and References.

10 Food transportation

The intended outcome is that during transport, food is protected from contamination and if it is potentially hazardous food, kept at a temperature that minimises the growth of pathogenic microorganisms, having regard to the transport time.

This clause applies to all food being transported from one place to another, whether within premises or from one premises to another. For example, it includes food being transported to wards in a hospital, and food being transported in vehicles.

While all food must be transported in a way that keeps it safe and suitable, extra care should be taken with:

- unpackaged food, because it is generally more vulnerable to exposure to hazards
- ready-to-eat food (see clause 1), because it will not be further treated to remove any contamination before it is eaten
- potentially hazardous food, because if it becomes contaminated with pathogenic microorganisms (e.g. from customers, animals or pests), these could grow to dangerous levels during transport (see clause 1 and Appendix 1)—additional requirements for this food are discussed in subclause 10(b).

10 A food business must, when transporting food:**(a) protect all food from the likelihood of contamination;**

While all food being transported must be protected, the level of protection required will depend on the type of food and whether it is packaged.

All vehicles used to transport food, including shopping trolleys, should be designed, constructed and cleaned to reduce the risk of food becoming contaminated during transport (see Standard 3.2.3 clause 17).

Food must not be transported in the same part of a vehicle that is carrying live animals (e.g. pets) other than live fish, shellfish or other live seafood (see 3.2.2 subclause 24(1)(a)).

Packaged food

Food that is packaged will generally be protected from contamination during transport by its packaging. However, care should be taken to ensure the packaging does not become damaged or contaminated in a way that might affect the safety or suitability of the food.

Damage could result from poor handling during packing of a vehicle, or from exposure during transport to environmental factors such as rain or extreme heat. Contamination could result, for example, from transporting food with chemicals. Wherever possible, this should be avoided or chemicals should be securely packaged separately from food to minimise contamination risks.

Unpackaged food

Unpackaged food is more vulnerable to contamination. It can be protected during transport, for example, in the following ways:

- placing unpackaged food, particularly ready-to-eat food, in food-grade containers or other appropriate wrapping for transport
- placing the food in a clean and enclosed area of the transport vehicle (e.g. transporting unpackaged meat carcasses enclosed within a clean truck)
- separating ready-to-eat foods from raw food such as raw meat, to avoid contamination from the raw food (e.g. meat juices) being transferred to the ready-to-eat food.

(b) transport potentially hazardous food under temperature control; and

During transport, potentially hazardous food must be kept under conditions that minimise the growth of pathogenic microorganisms. 'Potentially hazardous food' and 'temperature control' are further explained in clause 1 and Appendix 1.

Potentially hazardous food that needs to be kept cold during transportation should be transported in vehicles with appropriate equipment such as fitted refrigeration, ice bricks, or insulated containers. Similarly, food that needs to be kept hot during transport could be transported for example in insulated bags.

A business may transport potentially hazardous food at temperatures between 5°C and 60°C if they can demonstrate the practice is safe, for example using time as a control (e.g. see Appendix 2). Some examples of when this might arise are listed under subclause 5(3).

Keeping records of transport times and temperatures is not required by this standard; however, such records could be useful for the transport business to demonstrate that potentially hazardous food has been kept safe during transport.

Examples

Transporting potentially hazardous food

1. Home delivery of hot takeaway food

A takeaway food outlet offers a home delivery service for its hot food. It has established and documented that all food can be transported from the business to customers' homes within 40 minutes. The business therefore determines that it does not need to ensure the food is at a temperature of 60°C and above while it is being transported. However, it transports the food in insulated bags so it is still acceptably warm for customers.

2. Transporting chilled meat over long distances

A butcher supplies meat to restaurants over a wide delivery area. Many of its customers are several hours drive away. The butcher transports the meat in a refrigerated truck that is well maintained and fitted with a temperature data logger, to ensure it keeps food sufficiently chilled during transport.

(c) ensure that potentially hazardous food which is intended to be transported frozen remains frozen during transportation.

The business transporting frozen potentially hazardous food must keep this food frozen hard, unless it has been otherwise requested by the business receiving this food. Although a temperature for 'frozen' has not been specified, frozen food does not include food that is partly thawed. If the receiving business needs the food thawed or partially thawed for processing, this request should be agreed in advance.

Temperature control during transport of food that is not potentially hazardous

Specific temperature requirements have not been included for transporting food that is not potentially hazardous, for example frozen vegetables. However, all food needs to be kept at temperatures that prevent the food from becoming unsuitable. Storage instructions provided by the manufacturer should be followed for transportation, to ensure that food keeps for its intended shelf life.

11 Food disposal

The intended outcomes are that food that is recalled, returned or suspected of being unsafe and/or unsuitable is held, separated and identified from other food until it is:

- destroyed
- used for purposes other than human consumption
- returned to its supplier
- further processed in a way that ensures its safety and suitability, or
- ascertained to be safe and suitable;

and that food that has been served to a person is not resold unless the food has remained completely wrapped.

11(1) A food business must ensure that food for disposal is held and kept separate until it is:

'Food for disposal' is explained in subclause 11(2) below. A food business is required to hold this food and keep it separate from other foods until it has been assessed and dealt with as outlined in (a) to (d) below. This is to prevent the food from being accidentally sold or used. Food that is being held and kept separate must also be identified (see subclause 11(3)).

A completely separate storage area is not required, but these foods should be kept away from foods for sale. For example, the business could use a dedicated refrigerator shelf or dry storage area solely for this purpose, or keep these foods in special containers.

(a) destroyed or otherwise used or disposed of so that it cannot be used for human consumption;

The business may destroy or dispose of the food to ensure it cannot be consumed. Food would usually be disposed of by placing it in the rubbish. If large amounts of food need to be disposed of, special arrangements might need to be made. The business should check with their local enforcement authority or waste contractor if they are planning to dump large quantities, because the food may need to be destroyed or treated before it is dumped.

The food may be able to be used for purposes other than human consumption, for example as animal feed. The business may need to seek advice to confirm the food is suitable for the alternative purpose (for example some animal products may not be suitable for animal feed).

(b) returned to its supplier;

The food may be returned to the supplier, if for example it:

- is subject to a food recall
- has been incorrectly delivered
- has deteriorated or perished within its stated shelf life.

(c) further processed in a way that ensures its safety and suitability; or

The food may be able to be further processed to ensure its safety and suitability. For example:

- incorrect or damaged packaging could be replaced
- a new label could be applied to provide information that was previously missing
- a problem during manufacture could be rectified by re-processing.

Example

Re-processing food to ensure it is safe

A home-based business produces fruit preserves. The business owner finds that a batch of preserves she made on the previous day has not sealed correctly and so could be contaminated (or become contaminated during future storage). She decides to re-process the batch and empties the contents of the jars back into the jam pan to repeat the heating step. The preserves are then re-packed into new sterilised jars, and sealed securely.

(d) ascertained to be safe and suitable.

If a food business determines that food set aside for disposal is actually safe and suitable, the food can be resold. When assessing whether the food is safe and suitable, the following factors should be considered:

- for packaged food, whether the packaging is intact and not damaged or tampered with so the food is unlikely to have become contaminated
- if it is perishable food, whether it has been handled correctly so that it is not likely to have become damaged or deteriorated
- if it is potentially hazardous food, whether it has been kept under temperature control to prevent pathogens or their toxins reaching dangerous levels
- if the food is unpackaged, whether contamination of the food has occurred or is likely to have occurred.

Examples where returned food may be assessed as being safe and suitable for resale include:

- packaged non-perishable food that is returned for exchange or refund by a customer to a supermarket
- packaged food that is returned by a food business to the supplier because the order was incorrect
- food that was suspected by a food manufacturer to be unsafe or unsuitable and is subsequently found to be safe and suitable.

Food that has been served to a person and then returned cannot be determined as safe and suitable for resale unless the food was completely wrapped when served and has remained completely wrapped (subclause 11(4)).

11(2) In subclause (1), ‘food for disposal’ means food that:

(a) is subject to recall;

A food business is required to recall food that has been determined to be (or likely to be) unsafe. Further information is provided in clause 12.

(b) has been returned;

This includes any food that is returned to the food business from the person or business it has been sold to, for any reason. Examples are:

- food returned to a supermarket, restaurant or café
- food returned to a manufacturer, wholesaler or transporter.

(c) is not safe or suitable; or

Food that is not safe or suitable includes food that:

- has become contaminated by chemicals or foreign matter
- has become contaminated with pathogenic microorganisms
- is damaged, or has deteriorated or perished.

(d) is reasonably suspected of not being safe or suitable.

Sometimes the food business will not know for certain whether a food is unsafe or unsuitable. However, if the business reasonably suspects that a food is unsafe or unsuitable, it is considered to be food for disposal. Examples include:

- food that is reasonably suspected of being contaminated by foreign matter (e.g. glass, insects, cleaning chemicals)
- food that is reasonably suspected of being damaged, or having deteriorated or perished
- potentially hazardous food that has been left too long at temperatures between 5°C and 60°C
- food that has not been processed correctly.

What is 'reasonable to suspect' is not defined and would be for a court of law to determine.

The food business should use a commonsense approach. For example, if the business breaks a glass or a light shatters near exposed food, it would be reasonable to suspect that the food could be contaminated with glass. However, if the glass shatters well away from the exposed food and upon checking no glass can be found in this food, it may be reasonable to assume that the food has not become contaminated.

11(3) A food business must clearly identify any food that is held and kept separate in accordance with subclause (1) as returned food, recalled food, or food that is or may not be safe or suitable, as the case may be.

The food being held must be identified in some way to show that it is returned food, recalled food or food that is or may be unsafe or unsuitable. If the food is packaged, a label or permanent pen marking, for example, may be applied to the packaging material. If the food is being held in a storage container, the container needs to be marked or labelled.

Food that is immediately assessed and determined not to require holding does not need to be identified. For example, if food is found to be mouldy and immediately thrown out, it does not need to be identified because it is not being held. However, if the business needs to keep the mouldy food, for example to return it to the supplier, it must be kept separate from food for sale and be identified.

11(4) A food business must not sell food that has been already served to a person to another person unless the food was completely wrapped when served and has remained completely wrapped.

This subclause allows packaged food to be resold if the food was completely wrapped when served and has remained completely wrapped. This includes, for example:

- packaged snack food such as chips and chocolate bars
- packaged condiments and spreads such as sugar, salt, tomato sauce, soy sauce and jam.
- condiments wholly contained within dispensers such as bottled tomato sauce, soy sauce and salad dressings, and salt and pepper shakers
- unopened drink bottles or cans.

Food that cannot be resold includes:

- food that is only partially wrapped or enclosed, for example milk in a jug
- unpackaged food (including drinks) that has been served to a person in a restaurant, café, bar, etc., as it is likely to have been contaminated by that person as they handle or eat it. Even food that appears untouched by the customer must not be resold; for example, rice served in rice steamers or bread rolls served in table baskets.

Food that has been served to a customer incorrectly may be re-served, provided that the customer has not touched the food and it is immediately re-served.

12 Food recall

The intended outcome is that food manufacturers, food importers and wholesale food suppliers have a recall system that will ensure that unsafe food is promptly removed from distribution and sale.

A food recall system includes the procedures and arrangements that a food business has in place to remove unsafe food products that it has manufactured, imported or distributed. A food recall may be required if a food poses a risk to people's health or safety; for example, if food contains dangerous levels of pathogenic microorganisms, chemicals or foreign matter (e.g. glass), or has been incorrectly labelled (e.g. undeclared allergens), or has faulty packaging.

The *Food Industry Recall Protocol* (FSANZ 2014) on the FSANZ website provides information about recalling food in Australia and developing a food recall plan, including useful templates for food businesses — refer to Resources and References.

This clause does not cover food withdrawals, which are usually conducted for food that does not meet quality standards and where there is no associated public health and safety issue.

12 A food business engaged in the wholesale supply, manufacture or importation of food must:

(a) have in place a system to ensure the recall of unsafe food;

This requirement applies to food manufacturers, food importers and wholesale food suppliers, regardless of the scale and type of business (e.g. including small home-based businesses and businesses selling food via the internet). The requirement for a recall system applies to these sectors because their products are not for immediate consumption and are generally stored by customers. Food intended for immediate consumption is likely to have been eaten before it can be recalled.

Retail food businesses such as restaurants, cafés, takeaways etc. that prepare food for immediate consumption are not required to have a recall system unless it is also a food manufacturer, importer or wholesaler. For example, a café or market stall that makes its own jam only for use on the premises does not have to have a recall system for this food. However, if the same business decides to sell this jam to the public, it will need a recall system (since it is the manufacturer of the jam).

The objectives of a food recall are to:

- stop the distribution and sale of the product as soon as possible
- inform the government, the food businesses that have received the recalled food and the public (consumer level recalls only) of the problem
- effectively and efficiently remove unsafe product from the market place.

To meet these objectives a food recall system should have the following key features.

1. A list of authorities that should be notified of the recall.

Government authorities that the business should notify in the event of a recall include:

- FSANZ, which has responsibility for coordinating the recall nationally
- the food enforcement agency of the state or territory where the business's head office is located. This could be a state or territory health department, other food authority or primary industries agency. Their roles and responsibilities are explained in FSANZ's *Food Industry Recall Protocol* — see Resources and References.

Contact details for these authorities are available in the protocol and on the FSANZ website (see Resources and References).

2. Records of where product has been distributed.

It is critical that the business can identify and notify all of its customers of a food recall so that the affected batches of food can be retrieved from them as soon as possible. To ensure this, the business needs to maintain up-to-date records of:

- contact details for all the businesses to which they supply their products, including:
 - » contact names
 - » telephone (including after hours) and email details
 - » address details identifying which states, territories and, if relevant, other countries that receive their product
- which batches of product have gone where, including unique identifiers for lots/batches of food and details of volumes dispatched so they can be easily traced.

Where a food business does not deal directly with retailers (e.g. if its product is distributed via a distribution centre), it should still know which retailers its products are distributed to, or be able to readily obtain this information in the event of a recall.

Businesses recalling food might have to retrieve products from a number of different customers depending whether it is a trade- or consumer-level recall.

A trade recall involves food not directly sold to the general public but sold to other food businesses such as distribution centers, re-processors, manufacturers and wholesalers. It may involve food in hospitals, restaurants and other major catering establishments, and outlets that sell food manufactured for immediate consumption.

A consumer recall involves the food product at all points in the production and distribution network including any affected product bought by consumers. These recalls may involve, but are not limited to, trade outlets, retail outlets, supermarkets, grocery stores, health food stores, online stores, pharmacies and gyms that sell food.

Example

Food recall delayed due to lack of information

A food business finds a fault with a batch of products that will make those products unsafe to eat, so begins to conduct a recall. On notifying its state or territory enforcement agency and FSANZ, the business is required to provide details on the product (including name, packaging, batch codes, date marks, quantity) and all the companies where the product has been distributed. Unfortunately, the business does not have the distribution information readily available and spends all day tracking down the contact and address details of the retail outlets it supplies. This in turn causes unnecessary delays in removing the affected product from shops and in alerting the public about the unsafe food. Most importantly, the delay increases the chance that someone will eat the product and become unwell. After the recall is completed, the business ensures its distribution information is always kept up to date so this problem won't happen again.

3. Arrangements for advising customers to ensure that food is returned.

The following advice must be provided to businesses or persons who have the product:

- the name of the product and the batch code or date mark covered by the recall
- why the food is being recalled
- where to return unsold food
- who to contact in the company for further information.

FSANZ's *Food Industry Recall Protocol* in Resources and References describes ways of providing information to the public, such as through press advertisements and social media.

4. Arrangements for retrieving food that is returned by customers to supermarkets or other outlets, if this is applicable.

Customers may be advised to return the recalled food to the place of purchase. This may be retail premises rather than the wholesaler, manufacturer or importer recalling the food. The recalling business should tell the business that receives the returned food how it should dispose of that food. Any food disposal must comply with clause 11.

5. Arrangements for assessing how much food has been returned and how much remains in the market place.

A records system to log food that has been returned should be included to ensure, as far as is reasonably possible, that all the affected food is retrieved.

(b) set out this system in a written document and make this document available to an authorised officer upon request; and

The recall system must be documented and available to an authorised officer on request.

It is good practice for the business to have a copy of the recall system on the food premises, to enable prompt action if a recall situation arises and to ensure it is immediately available if an authorised officer requests to see it. The document may be kept electronically.

(c) comply with this system when recalling unsafe food.

The system will only ensure that unsafe food is successfully recalled if it is actually used by the food business. The food business is required to comply with the system it has developed if it has to recall an unsafe product.

Division 4 — Health and hygiene requirements

Subdivision 1 — Requirements for food handlers

'Food handler' and 'handling' (of food) are defined in Standard 3.1.1 Interpretation. Note that the food business is ultimately responsible for the safety and suitability of food handled by that business.

13 General requirement (on food handlers)

The intended outcome is that food handlers take all reasonable measures not to compromise the safety and suitability of food.

13 A food handler must take all reasonable measures not to handle food or surfaces likely to come into contact with food in a way that is likely to compromise the safety and suitability of food.

'Surfaces likely to come into contact with food' include eating and drinking utensils, food preparation equipment and food packaging materials.

'Reasonable measures'

What would be considered 'reasonable measures' will depend on the particular situation and the food handling operations the food handler carries out.

Measures that the food handler could take to minimise the likelihood of compromising food safety and suitability include (to the extent that is reasonable):

- ensuring food is cooked or processed correctly
- ensuring potentially hazardous food is kept at the correct temperature or, if time is being used as a control, that the maximum amount of time has not been exceeded
- ensuring food is adequately protected from contamination
- ensuring eating and drinking utensils and food contact services are correctly cleaned and sanitised
- ensuring food contact surfaces are adequately protected from contamination
- reporting to a supervisor when a problem is observed (e.g. equipment is not working correctly).

14 Health of food handlers

The intended outcomes are that:

- food handlers suffering or suspected to be suffering from foodborne diseases or certain conditions do not contaminate food
- a food handler notifies the food business if the food handler suspects he or she may have contaminated food.

14(1) A food handler who has a symptom that indicates the handler may be suffering from a foodborne disease, or knows he or she is suffering from a foodborne disease, or is a carrier of a foodborne disease, must, if at work:

'Foodborne disease' is explained in clause 1. If a food handler is infected with a pathogen that can be transmitted via food, they could transfer these pathogens to food and cause illness in the people who eat it. In some cases, even if a food handler feels well or shows no symptoms of foodborne disease, they could have a pathogen and transmit it via contaminated food.

Diseases that are known to be transmitted by food that has been contaminated by infected food handlers are listed in the table below. This information has been compiled (February 2016) from expert elicitation with OzFoodNet, a collaborative network of state and territory health authorities (see <http://www.ozfoodnet.gov.au/>).

Common foodborne diseases that can be transmitted by food handlers

Campylobacteriosis	Norovirus
Cryptosporidiosis	Pathogenic <i>Escherichia coli</i> infection
Entamoeba histolytica infection	Rotavirus
Enteric fever (typhoid, para typhoid)	Salmonellosis
Giardia infection	Shigellosis
Hepatitis A	<i>Staphylococcus aureus</i> gastroenteritis
Hepatitis E	Yersiniosis

Subclauses 14(1)(a), (b) and (c) described in the paragraphs below apply to:

1. Food handlers who have a symptom (diarrhoea, fever, vomiting, sore throat with fever, or jaundice) that indicates he or she may be suffering from a foodborne disease — unless they know they have those symptoms due to another reason; for example vomiting because of pregnancy or diarrhoea from a diagnosed bowel disorder.
2. Food handlers who know they are suffering from a foodborne disease, because they have been diagnosed by a medical professional.
3. Food handlers who know that they are carriers of a foodborne disease (excluding *Staphylococcus aureus*), because they have been diagnosed by a medical professional — a person who carries a disease does not have symptoms but still sheds the pathogen and is therefore capable of contaminating food.

- (a) report that he or she is or may be suffering from the disease, or knows that he or she is carrying the disease, to his or her supervisor, as the case may be;**

If any of 1–3 above apply, the food handler must, if at work, inform their supervisor. If the food handler is in any doubt about whether they have a foodborne illness, they should inform their supervisor and/or seek medical advice.

- (b) not engage in any handling of food where there is a reasonable likelihood of food contamination as a result of the disease; and**

Whether the food handler can safely undertake any duty that involves handling food should be assessed on a case-by-case basis by the relevant authority together with the affected food handler and their supervisor. State and territory health authorities have policies in place outlining the circumstances when persons need be excluded from certain duties.

Generally, it would not be acceptable for a food handler to be at work while suffering vomiting and/or diarrhoea. Food handlers may be legally obliged to comply with an exclusion notice issued from a health authority.

When determining what duties an affected food handler should be excluded from, the following factors need to be considered:

- **What disease is the food handler suffering from or carrying?**

A food handler suffering from illness caused by *Salmonella* Typhi, *Shigella* spp., enterohaemorrhagic *Escherichia coli* or Hepatitis A virus, is considered to pose the most risk due to the high infectivity and virulence of these pathogens.

- **What are the food handler's duties?**

Duties that involve direct contact with ready-to-eat food, or eating and drinking utensils would be considered higher risk than duties that do not involve these things.

- **Does the food handler work at a business that provides food to a susceptible population?**

If the business provides food to the young, the elderly or the immuno-compromised (e.g. in hospitals, nursing homes or child care centres), greater precautions need to be taken.

- **If the food handler was ill, how long is it since they showed symptoms?**

National guidelines for the management of gastroenteritis outbreaks recommend that food handlers should not return to their usual duties until they have been symptom-free for 48 hours (Australian Government Department of Health and Ageing and Communicable Diseases Network Australia 2010, OzFoodNet Working Group 2012a).

- (c) if continuing to engage in other work on the food premises — take all practicable measures to prevent food from being contaminated as a result of the disease.**

If there are no or only limited food-handling activities that the affected food handler can do safely, they may do other things within the business. Examples may include administrative duties or general cleaning duties provided these duties do not include contact with eating and drinking utensils or food contact surfaces.

An affected food handler may need to be restricted from a food business completely if:

- there are no food handling activities they could undertake without there being a reasonable likelihood of food contamination as a result of their disease
- no other activities could be found for the food handler to do safely or be able to do
- the food handler poses a risk (if their disease is highly infectious) to other persons working in the business.

14(2) A food handler who suffers from a condition must, if at work:

'Condition' is explained in clause 1.

(a) if there is a reasonable likelihood of food contamination as a result of suffering the condition — report that he or she is suffering from the condition to his or her supervisor; and

A food handler suffering from a condition while at work must report this fact to their supervisor.

The only exception is if it is not reasonably likely that food will become contaminated as a result of the food handler suffering the condition, such as if:

- the food handler does not have any direct contact with food, food contact surfaces or eating and drinking utensils
- an infected skin lesion is on an unexposed part of the food handler's body and is covered so that it cannot be touched during food handling.

(b) if continuing to engage in the handling of food or other work — take all practicable measures to prevent food being contaminated as a result of the condition.

Practicable measures that the affected food handler may be able to take if they continue to work at the premises include:

- completely covering infected skin lesions with bandages or dressings and, if the skin lesion is on an exposed part of his or her body, covering the bandage or dressing with a waterproof covering (this may not always be practicable, e.g. with acne)
- avoiding touching the infected skin lesion, or discharge from ear, nose or eye
- washing and drying hands thoroughly if direct contact is made with an infected skin lesion or discharge
- using medication to dry up discharges from the ear, nose or eye
- using disposable tissues to mop up any discharge, followed by thoroughly washing and drying hands.

14(3) A food handler must notify his or her supervisor if the food handler knows or suspects that he or she may have contaminated food whilst handling food.

If a food handler knows or suspects they have contaminated food while handling it, they are required to notify their supervisor as soon as possible. Prompt reporting enables the supervisor to assess what should be done to ensure food safety or suitability (e.g. the food might need to be discarded or equipment might need to be cleaned and sanitised immediately).

Examples where a food handler has or may have contaminated food include the following:

- the same gloves or utensils have been accidentally used for handling raw and then cooked food
- jewellery has or may have fallen into food
- a bandaid has or may have fallen into food
- glass has been broken into or near exposed food.

15 Hygiene of food handlers

The intended outcome is that personal hygiene practices of food handlers are of a level that minimises the contamination of food.

15(1) A food handler must, when engaging in any food handling operation:

- (a) **take all practicable measures to ensure his or her body, anything from his or her body, and anything he or she is wearing does not contaminate food or surfaces likely to come into contact with food;**

Poor personal hygiene practices of food handlers may result in food becoming contaminated from their body or something they are wearing. Food handlers must take all practicable measures to ensure these things do not contaminate food, or surfaces likely to come into contact with food.

Examples of contamination sources and practicable measures are given in the table below.

The measures that should be taken will depend on circumstances such as the duties of the food handler, but are particularly important for food handlers working in direct contact with exposed food or surfaces likely to come into contact with food.

Source of contamination by food handler	Practicable measures to avoid contamination of food or surfaces likely to come into contact with food
Body (e.g. hands, arms, face)	<ul style="list-style-type: none"> • ensuring hands are thoroughly washed and dried before handling food or using gloves • avoiding unnecessary contact with exposed food, especially ready-to-eat food (see also 15(1)(b)) (e.g. not using fingers to taste food) • avoiding unnecessary contact with surfaces likely to come into contact with food (e.g. handling clean glasses by the bottom or the stem instead of the inside)
Bodily secretions (saliva, mucus, sweat and blood)	<ul style="list-style-type: none"> • see paragraphs 15(1)(e)–(h) below
Clothing	<ul style="list-style-type: none"> • ensuring all buttons, flaps, sequins, etc. on clothing are secure • ensuring clothing is clean (see 15(1)(c))

Source of contamination by food handler	Practicable measures to avoid contamination of food or surfaces likely to come into contact with food
Fingernails	<ul style="list-style-type: none"> • wearing clean intact gloves while handling food or surfaces likely to come into contact with food • keeping fingernails short to allow them to be easily cleaned, to avoid bits of fingernail breaking off into food, and to avoid accidentally tearing gloves and food packaging • not wearing nail polish, artificial fingernails or other fingernail decorations • for long nails, extra effort must be made to thoroughly wash under nails, which can trap dirt, faecal matter, etc.
Hair	<ul style="list-style-type: none"> • restraining hair by tying it back, using hairnets, beard restraints, bandannas, hats, etc.
Hair bands, clips, pins	<ul style="list-style-type: none"> • wearing no or a minimum amount of hair accessories • ensuring any hair accessories worn are secure and/or covered (e.g. with a hair net)
Jewellery	<ul style="list-style-type: none"> • wearing no jewellery or a minimum amount of jewellery, especially on hands and wrists • ensuring any jewellery worn is not loose • if any jewellery is worn on hands or wrists, ensuring that extra effort is made to thoroughly clean under and around the jewellery • wearing gloves over jewellery on hands • not touching jewellery, especially jewellery in body piercings
Adhesive dressings and other bandages	<ul style="list-style-type: none"> • ensuring all dressings and bandages are secure and/or covered (e.g. with a glove) • 15(1)(d) requires bandages and dressings on exposed parts of the body to be completely covered and waterproof
Mobile phones	<ul style="list-style-type: none"> • ensuring phones being held in clothing are held securely • avoiding using phones during food handling tasks • if a phone is touched during food handling, ensuring hands are thoroughly cleaned afterwards

(b) take all practicable measures to prevent unnecessary contact with ready-to-eat food;

Contact with ready-to-eat food (e.g. cooked meat, prepared salads and sandwiches) should be kept to a minimum because it will not be further processed to destroy any pathogens that may be transferred to it. Even small numbers of some foodborne pathogens can cause illness, such as noroviruses. In addition, a food handler may not be aware that they are shedding (releasing) a pathogen and so may not realise they may be contaminating food during handling.

Practical measures the food handler can take to prevent unnecessary contact with ready-to-eat food include:

- using clean tongs or other implements to handle the food
- using gloves, ensuring that the gloves are changed if they become contaminated (see clause 23)
- using other barriers, such as greaseproof paper or inside out food-grade plastic bags, to contact the food.

It is recognised that gloves may not be practicable for some tasks with ready-to-eat food; for example, if a food handler is making cake decorations or other intricate foods. If direct hand contact is necessary, hands must be thoroughly washed and dried before the food is handled, as per subclause 15(4).

(c) ensure outer clothing is of a level of cleanliness that is appropriate for the handling of food that is being conducted;

Dirty clothing might contaminate food if the clothing directly touches food or if food handlers touch their dirty clothing (e.g. wipe their hands) and then touch food. Food handlers are obliged under paragraph (a) of this clause to ensure that their outer clothing does not contaminate food or surfaces likely to come into contact with food. This paragraph (c) recognises that the clothing of food handlers involved in 'messy' activities will not be as clean as those who are involved in 'clean' activities. For example, the outer clothing of a butcher would not be expected to be as clean as that of a food handler preparing sandwiches.

Clothing should be changed if it becomes so dirty that it is likely to contaminate food or surfaces likely to come into contact with food. For example, food handlers should change outer clothing between handling exposed raw food and then exposed ready-to-eat food if the clothing is contaminated and may contaminate the ready-to-eat food.

Wherever possible, aprons, overalls and other outer protective clothing should only be worn in food handling areas; they should be removed for toilet and other breaks.

(d) only use on exposed parts of his or her body bandages and dressings that are completely covered with a waterproofed covering;

Seepage from a wound can contaminate food from direct contact, or if the food handler touches the seepage and then touches food. To prevent this, wounds on exposed parts of the body are required to be completely covered with a waterproof covering.

A waterproof covering:

- may be included as part of the bandage or dressing material
- may be a separate covering placed on top of the bandage or dressing — if the bandage or dressing is located on a hand, a suitable glove should be used
- may be coloured so that it can be easily located if it falls off into food.

(e) not eat over unprotected food or surfaces likely to come into contact with food;

To prevent food from becoming contaminated, food handlers are not permitted to eat over unprotected food or surfaces likely to come into contact with food. If food handlers were to eat over exposed food or surfaces, their saliva or bits of the food being eaten could fall into the business's food or onto the surface. Food handlers are also likely to contaminate their fingers from contact with their mouth during eating, presenting another risk of saliva transferring to food or surfaces.

Food handlers are permitted to eat or drink in food-handling areas provided they do not eat or drink over the business's unprotected food or surfaces.

(f) not sneeze, blow or cough over unprotected food or surfaces likely to come into contact with food;

This means, for example, that food handlers must sneeze and cough away from food or surfaces likely to come into contact with food. They are not permitted to blow into bags that will come into contact with food.

(g) not spit, smoke or use tobacco or similar preparations in areas in which food is handled; and

Food handlers are not permitted to spit, smoke or chew tobacco in food-handling areas. Many jurisdictions prohibit smoking within certain distances of food preparation — check with local councils. Chewing gum is not recommended as it can increase the chance of food becoming contaminated with saliva.

(h) not urinate or defecate except in a toilet.

Clause 16 of Standard 3.2.3 requires food businesses to ensure that adequate toilets are available for the use of food handlers working for the business. This requirement obliges food handlers to use these facilities. Note that these requirements apply equally to permanent and temporary food businesses.

15(2) A food handler must wash his or her hands in accordance with subclause (4):

(a) whenever his or her hands are likely to be a source of contamination of food;

Washing and drying hands thoroughly is one of the most important things that food handlers must do to prevent food becoming contaminated. The reference to 'whenever his or her hands are likely to be a source of contamination of food' is intended to capture any circumstance in which a food handler may need to wash his or her hands to protect the safety of food.

While paragraphs (b) and (c) below and subclause 15(3) specify particular circumstances in which a food handler must wash his or her hands, other instances include:

- after handling garbage
- after cleaning duties such as mopping
- after handling animals or children.

Handling food and money

A food handler may handle money and food at the same time (e.g. in a takeaway shop) provided that the food is protected from contamination. The food could be protected, for example, by its packaging, or by the food handler using tongs, clean gloves, inside-out plastic bags, serving platters or other implements. Note that the food handler should not be directly handling ready-to-eat food and money, as required under paragraph 15(1)(b) above. If gloves or similar are used for handling ready-to-eat food such as sandwiches they should be changed each time the task is disrupted by handling money.

(b) immediately before working with ready-to-eat food after handling raw food; and

Extra care is needed to protect ready-to-eat food from becoming contaminated (see 15(1)(b) above). Food handlers who are directly handling raw food (e.g. raw meat, fish, poultry, eggs and unwashed fruits and vegetables) must wash their hands before directly handling ready-to-eat food, to prevent contamination from raw food being transferred to the ready-to-eat food. Raw food is more likely to contain foodborne pathogens as it has not yet been cooked or otherwise processed to destroy pathogens. If these pathogens are transferred to ready-to-eat food, they could make the food unsafe.

(c) immediately after using the toilet.

It is essential that food handlers wash their hands immediately after using the toilet. During toilet activities hands can become highly contaminated with pathogens that can cause foodborne illness if they are transferred to food. In certain settings, such as a home-based business, other activities such as changing of nappies are akin to using the toilet.

15(3) A food handler must, when engaging in a food handling operation that involves unprotected food or surfaces likely to come into contact with food, wash his or her hands in accordance with subclause (4):

(a) before commencing or re-commencing handling food;

Unprotected (unpackaged or uncovered) food and surfaces are vulnerable to becoming contaminated, so food handlers must wash their hands before they handle exposed food or surfaces likely to come into contact with food, including eating and drinking utensils and equipment used to prepare food.

If a food handler stops handling the exposed food or surfaces to perform another work duty or to go on a break, they must wash their hands again before recommencing the handling of the food or surface.

(b) immediately after smoking, coughing, sneezing, using a handkerchief or disposable tissue, eating, drinking or using tobacco or similar substances; and

All these actions can make hands highly contaminated with bodily excretions that can contain pathogens that can cause foodborne illness if they are transferred to food, so washing hands is essential to remove any contamination. Note that jurisdictions' legislation related to smoking will also apply.

(c) after touching his or her hair, scalp or a body opening.

As above, all these actions can make hands highly contaminated, so washing hands is essential to remove any contamination.

A body opening includes the mouth, nose and ears.

15(4) A food handler must, whenever washing his or her hands:**(a) use the hand washing facilities provided;**

Food handlers must wash their hands in the hand washbasin/s provided and not in sinks that are used for other purposes. Other sinks must not be used for hand washing because:

- the sink may become contaminated from hand washing and then transfer pathogens to food; for example if a food preparation sink is used for hand washing
- the hands may become contaminated from material in the sink; for example if a sink used for liquid waste is used for hand washing.

Another reason for requiring dedicated hand washbasins is so they will always be available for washing hands, as other sinks may be in use. Food handlers need to have ready access to hand washing facilities at all times.

(b) thoroughly clean his or her hands using soap or other effective means, and warm running water; and**'Thoroughly clean'**

'Thoroughly clean' means that the food handler vigorously washes the entire surface of his or her hands using soap or other effective means. Scientific studies have shown that to effectively remove pathogenic microorganisms, hands should be wet, well covered with soap and scrubbed for 15 to 30 seconds, including palms, between fingers, under nails, the back of hands, thumbs and wrists (Todd et al 2010a). Clean nail brushes may assist in scrubbing off dough and other hard-to-remove food residues. Hands should be thoroughly rinsed with clean water. Care must be taken to avoid re-contaminating washed hands, for example by using a clean paper towel or elbow to turn off taps that are manually operated.

Soap

Soap helps remove grease, dirt and pathogenic microorganisms from hands. Food handlers should ideally use liquid soap to wash their hands, as bar soap and soap dishes that are repeatedly used can become contaminated (see Todd et al 2010b). The use of antibacterial soap is not required; it is more important to use enough soap to lather both hands and wash them thoroughly as described above.

Hand sanitisers including hand gels or foams should generally **not** be used as a substitute for washing hands with soap. This is because sanitisers generally do not reduce levels of microorganisms on hands as effectively as soap and water, particularly if hands are visibly dirty (Todd et al 2010b). However, the use of hand sanitisers as a substitute may be appropriate in certain circumstances; for example at temporary premises — see subclause 15(5).

Warm running water

Warm running water is required for hand washing because:

- it helps to remove grease from hands
- it encourages food handlers to wash their hands — if the available water is too hot or too cold, food handlers might not wish to use the facility provided.

Although no water temperature has been prescribed, water should be warm enough to be comfortable. The washing time and friction generated during lathering are more important than the water temperature (Todd et al 2010a).

Certain food businesses may be able to obtain an exemption from the requirement for warm running water — see subclause 15(5).

(c) thoroughly dry his or her hands on a single use towel or in another way that is not likely to transfer pathogenic microorganisms to the hands.

Drying hands properly is just as important as washing them. Studies on hand hygiene have shown that the drier the hands, the less likely they are to transfer bacteria (Patrick, Findon & Miller 1997, also reviewed in Todd et al 2010a, Huang et al 2012). Food handlers are therefore required to thoroughly dry their hands after hand washing. It is not sufficient for food handlers to simply shake their hands or give them a quick wipe.

Single use towels

It is recommended that food handlers use single use towels or a combination of single use towels and an air dryer to thoroughly dry hands. Single use paper towels have been found to be generally better than electric air dryers from a hygiene perspective (Todd et al 2010a, Huang et al 2012). Paper towels can dry hands efficiently, remove bacteria effectively, and cause less contamination of the washing environment than other methods.

Single use towels include reusable towels; however, if reusable towels or tea towels are used for hand drying, they must only be used once and then be washed and dried before being reused. Clothing, aprons, or cloths being used for wiping benches or drying dishes should not be used to dry hands.

15(5) A food handler who handles food at temporary food premises does not have to clean his or her hands with warm running water, or comply with paragraph (4)(c), if the appropriate enforcement agency has provided the food business operating from the temporary food premises with approval in writing for this purpose.

Food handlers working at a temporary food premises do not have to wash their hands under warm running water or dry them using single use towels, if a written exemption from these requirements has been provided from the appropriate enforcement agency. This subclause recognises that food handlers working at some temporary premises might not have access to these facilities (for examples see clause 17) and an exemption may be granted based on risks to food safety.

If, for example, food handlers are provided with alcohol-based hand sanitising gels or foams as an alternative, they should:

- clean visible soil from hands with single use wipes or equivalent before applying the hand rub
- apply a palmful of hand rub and thoroughly rub the palms, fingers, webbing and back of hands for 20 to 30 seconds until dry (WHO 2009).

Subdivision 2 — Requirements for food businesses

16 Health of persons who handle food — duties of food businesses

The intended outcome is that food businesses ensure that food is not contaminated by:

- persons known to be suffering or carrying a foodborne disease, or
- persons known or reasonably suspected to be suffering from certain conditions.

This clause outlines the business's obligations to deal with persons suffering from or carrying a foodborne disease or with certain health conditions.

Records of staff illness and conditions

It is good practice for the business to record reported staff illness and conditions and what action (if any) was taken. These records may be useful in the event of a foodborne disease outbreak (for example, by providing information to trace the source of food contamination). They may also help demonstrate the business's compliance with requirements. Records could include:

- the name of the person afflicted by the illness or condition
- the date when the illness or condition was reported
- details of the illness or condition, including how long the person has been suffering from the illness or condition and, in relation to illness, details of the person's symptoms
- the action taken in response to the reported illness or condition (e.g. a person reporting to have diarrhoea may be sent home)
- the name of the person who determined what action should be taken — usually the supervisor or manager.

16(1) A food business must ensure the following persons do not engage in the handling of food for the food business where there is a reasonable likelihood of food contamination:

Food handlers are required in paragraph 14(1)(b) not to handle food where there is a reasonable likelihood of food contamination if they are or may be suffering from a foodborne disease, or are carrying a foodborne disease. This clause obliges food businesses to ensure that these food handlers do not engage in these activities. It also obliges the business to ensure that any other affected persons handling food for the business do not engage in these activities. This includes staff's friends and family, managers and supervisors and the proprietor of the business. In a home-based business, it includes children and visitors in the home.

The duties from which an affected person should be excluded will depend on a number of factors and should be assessed on a case-by-case basis (see 14(1)(b) above). If an affected person is excluded from certain duties, the business must make sure the person does not perform these duties.

(a) a person known to be suffering from a foodborne disease, or who is a carrier of a foodborne disease; and

'A person' includes:

- a food handler who reports to his or her supervisor that he or she is suffering a foodborne disease or knows he or she is carrying a foodborne disease, as required by paragraph 14(1)(a)
- other persons reported to the business to be suffering from or carrying a foodborne disease.

What is considered a foodborne disease is discussed in clause 14 above.

(b) a person known or reasonably suspected to have a symptom that may indicate he or she is suffering from a foodborne disease.

'A person' includes:

- a food handler who reports to his or her supervisor that he or she is suffering from a symptom that may indicate he or she is suffering from a foodborne disease, as required by paragraph 14(1)(a)
- any other person reported to the business, or reasonably suspected by the business, to be suffering from a symptom that may indicate the person is suffering from a foodborne disease. In a home-based business, it may include children and visitors in the home.

'Symptom' has been defined in clause 1. A business may reasonably suspect a person is suffering from a foodborne disease if he or she presents with one of these symptoms. If a person is known or suspected to be suffering from one of these symptoms, the business should discuss this with them before a decision is made about whether they need to be excluded from any duties. For instance, the person may be suffering from a symptom but not have reported it because they know that symptom is not due to a foodborne illness.

16(2) A food business must ensure that a person who is known or reasonably suspected to be suffering from a condition and who continues to engage in the handling of food for the food business takes all practicable measures to prevent food contamination.

'A person' includes:

- a food handler who reports to his or her supervisor that he or she is suffering from a condition — this is only required where there is a possibility of food contamination occurring as a result of the food handler suffering the condition (paragraph 14(2)(a))
- other persons reported to the business, or reasonably suspected by the business, to be suffering from a condition.

'Condition' is described in clause 1. A business may reasonably suspect a person is suffering from a condition if he or she presents with the symptoms described and require them to take all practicable measures to prevent food contamination.

Practicable measures the affected person may be able to take to prevent food contamination are listed in paragraph 14(2)(b) above.

16(3) A food business may permit a person excluded from handling food in accordance with paragraph (1)(a) to resume handling food only after receiving advice from a medical practitioner that the person no longer is suffering from, or is a carrier of, a foodborne disease.

This clause applies to a person who is known to be suffering from or carrying a foodborne illness and who has been excluded from certain duties because there was a risk of food being contaminated (as discussed in 14(1)(b) above).

An excluded person may only resume duties when advice is received from a medical practitioner that the person is no longer suffering from or carrying the foodborne disease. The medical practitioner will make this assessment, including tests as required. However, advice may be sought from national, state or territory health authorities' guidelines on when an excluded person should be permitted to resume work duties.

National guidelines for the management of gastroenteritis outbreaks generally recommend that food handlers should not return to their usual duties until 48 hours after their symptoms have ceased (Australian Government Department of Health and Ageing and Communicable Diseases Network Australia 2010, OzFoodNet Working Group 2012a). These guidelines also recommend that food handlers are counselled on personal hygiene before returning to work. This advice has been designed to complement other authoritative sources including jurisdictional guidelines.

Sick food handler returning to work too early

A food handler working for a catering business was suffering from a foodborne illness (viral gastroenteritis) and was sent home. After a day off, he returned to work to help prepare food for an event. However, this was before the recommended exclusion period had expired (i.e. 48 hours after symptoms have ceased) and so it was likely that he was still contagious. He prepared ready-to-eat food (salads and sandwiches) for the event and unknowingly contaminated the food. The following day, the people who had attended the event and eaten the food became sick from the virus.

17 Hygiene of food handlers — duties of food businesses

The intended outcome is that food businesses maintain adequate hand washing facilities on the food premises and ensure the facilities are only used for personal washing.

17(1) Subject to subclause (2), a food business must, for each food premises:

These requirements must be complied with for every hand washing facility located on the premises, including those in toilets.

(a) maintain easily accessible hand washing facilities;

Subclause 14(1) of Standard 3.2.3 requires hand washing facilities to be located where they can be easily accessed by food handlers. This paragraph requires businesses to ensure that these facilities remain accessible after they have been installed. This means, for example, that businesses are not permitted to obstruct hand washing facilities by placing equipment in them, in front of them or on top of them.

(b) maintain, at or near each hand washing facility, a supply of:

(i) warm running water; and

Paragraph 14(2)(b) of Standard 3.2.3 requires hand washing facilities to be connected to, or otherwise provided with, a supply of warm running potable water. This paragraph requires businesses to maintain this water supply. This means, for example, that businesses must not disconnect the water supply to a hand washing facility and must fix the facility if it breaks.

Temporary premises must comply unless an exemption has been granted (see subclause 17(3)). Most temporary premises will be able to maintain a supply of running water for hand washing, for example by using urns or plastic water containers with a tap valve. These containers should be filled with warm water, where possible.

Warm water has been required for the reasons outlined under paragraph 15(4)(b). A temperature has not been specified for warm water but it should be warm enough to feel comfortable.

(ii) soap; or

(iii) other items that may be used to thoroughly clean hands;

The food business must ensure that soap or other items that may be used to thoroughly clean hands are always available at or near each hand washing facility. It is preferable that the business provides liquid soap in a dispenser. An alternative to soap is permitted, provided it is just as effective at removing grease, dirt and pathogens from hands. Hand sanitisers such as alcohol-based gels and wipes should not be used as a soap substitute.

(c) ensure hand washing facilities are only used for the washing of hands, arms and face; and

The food business must ensure hand washing facilities are not used for other purposes. For example, they must not be used for food preparation, to clean equipment or as a 'slop' sink to discard waste. This is to ensure that the facility is always available for use and does not become contaminated.

(d) provide, at or near each hand washing facility:

(i) single use towels or other means of effectively drying hands that are not likely to transfer pathogenic microorganisms to the hands; and

The food business must maintain a supply of single use towels, or other means of effectively drying hands, at or near each hand washing facility. Air dryers alone are not generally considered as effective as single use towels for drying hands, as they can take much longer to achieve the same drying result and are less likely to be used effectively (Todd et al 2010a). The narrow opening of air blades may impede thorough drying of wet wrists and arms. However, air dryers and single use towels can be very effective if used together. Air dryers are not generally recommended in food preparation areas as the blowing air may pose a risk of cross contaminating food or surfaces that may contact food. If non-disposable towels are provided, they must be washed and dried between every use.

(ii) a container for used towels, if needed.

A container for the used towels must be provided at or near each hand washing facility. This is to prevent the used towels contaminating the area around the facility and to prevent them being reused.

17(2) Paragraph (1)(c) does not apply in relation to hand washing facilities at food premises that are used principally as a private dwelling if the proprietor of the food business has the approval in writing of the appropriate enforcement agency.

This exemption is intended to allow home-based businesses to use a kitchen sink for hand washing as well as other purposes, such as food preparation and cleaning utensils, if food safety is not compromised. The exemption recognises that domestic-style kitchens do not usually have designated hand washing facilities.

It is important that hand washing facilities are always available while food is being prepared and that they do not become contaminated. In a domestic kitchen this can be achieved by:

- having only one or two people at most using the kitchen so that a sink should always be available
- organising food handling activities so that the use of the sink can be separated by time (i.e. the sink is only used for one purpose at a time) and it is available when required
- cleaning and sanitising sinks between uses if there is risk of food contamination occurring.

The appropriate enforcement agency may grant an exemption based on the operations of the food business and risks to food safety.

17(3) With the approval in writing of the appropriate enforcement agency, a food business that operates from temporary food premises does not have to comply with any of the requirements of paragraphs (1)(b)(i) or (1)(d) that are specified in the written approval.

This exemption is intended to allow businesses that operate temporary food premises to:

- only provide cold running water for hand washing if they do not have access to warm water
- provide alternative hand washing facilities if they do not have access to any running water or to sufficient running water for hand washing (see below).

The appropriate enforcement agency may grant an exemption based on risks to food safety. It must be in writing, indicate what requirements the business is exempted from and outline the alternative hand washing methods to be used.

Alternatives to running water

Most temporary food premises should have access to running water for hand washing, and may be able to provide warm running water (see paragraph 17(1)(b) above). Where running water is provided, single use towels must be provided for food handlers to dry their hands.

However, some temporary food businesses may not be able to provide running water for hand washing, for instance on camping trips or in remote areas. In these circumstances, if an exemption is granted, the business must provide an appropriate alternative system for hand washing. Examples include alcohol-based hand gels or foams, or single use anti-bacterial wipes (also see subclause 15(5)).

If water is not being used for hand washing, the business does not need to provide single use towels for hand drying.

18 General duties of food businesses

The intended outcomes are that food businesses:

- inform food handlers of their health and hygiene obligations
- only disclose information provided by food handlers about their health or hygiene to certain persons and do not use this information for any purposes other than addressing the risk of food contamination
- take all reasonable measures to ensure persons on food premises do not contaminate food.

18(1) A food business must inform all food handlers working for the food business of their health and hygiene obligations under Subdivision 1 of this Division.

Specific obligations are placed on food handlers in Subdivision 1 of this standard, to ensure that their actions do not result in food becoming unsafe or unsuitable. Food handlers must comply with these requirements.

The food business must inform food handlers of all their health and hygiene obligations, preferably in writing. If the business employs food handlers from non-English-speaking backgrounds, the requirements should ideally be provided in the relevant languages.

18(2) A food business must ensure that any information provided by a food handler in accordance with Subdivision 1 of this Division is not disclosed to any person without the consent of the food handler, except the proprietor or an authorised officer, and that the information is not used for any purpose other than addressing the risk of food contamination.

A food handler is required to report to their supervisor certain information related to foodborne disease, health conditions, and food contamination as per 14(1)(a), 14(2)(a) or 14(3). The supervisor must not disclose this information to any person without the food handler's consent, with the exception of the business proprietor or an authorised officer. An authorised officer is a person with powers under the relevant state or territory Food Act, such as an Environmental Health Officer.

The supervisor is not permitted to use this information for any purpose other than to protect food from contamination. This requirement is to ensure that the information is not used incorrectly or inappropriately.

18(3) A food business must take all practicable measures to ensure all people on the food premises of the food business:

'Practicable measures' recognises that businesses cannot completely control people on the premises, but they can take steps to minimise risks to food safety and suitability.

'All people' includes food handlers, tradespeople, visitors and members of the public.

(a) do not contaminate food;

The measures that the business needs to take to ensure people do not contaminate food will depend on its food operations. For example, businesses that handle unpackaged food will generally need to take more and/or stricter measures than businesses that only handle packaged food because the risk of contamination is greater for exposed foods.

Practicable measures the business could take in areas where there is exposed food or surfaces likely to come into contact with food could include, for example:

- where possible, restricting all persons except food handlers from these areas (for home-based businesses this may include children and other family members)
- where persons have a legitimate reason for being in these areas, supervising these people, as far as practicable, to ensure they do not:
 - » unnecessarily handle food or surfaces likely to come into contact with food
 - » sneeze, blow or cough over food or food contact surfaces
 - » eat or chew gum over exposed food or food contact surfaces
- in food manufacturing areas, taking additional action, such as requiring persons to:
 - » wear special protective clothing and hair coverings
 - » wash their hands before entering these areas
 - » wash shoe soles before entering these areas.

(b) do not have unnecessary contact with ready-to-eat food; and

Exposed ready-to-eat food needs particular care, as it will not be further processed to make it safe and suitable before it is consumed.

If the business is displaying unpackaged ready-to-eat food for self-service, it must comply with subclause 8(2).

Other exposed ready-to-eat food on the premises could be protected by taking steps as listed for (a) above.

Note food handlers are required to prevent unnecessary contact as per paragraph 15(1)(b).

(c) do not spit, smoke, or use tobacco or similar preparations in areas where there is unprotected food or surfaces likely to come into contact with food.

The business must ensure people do not spit or smoke in food preparation areas and other areas where there is exposed food or surfaces likely to contact food (e.g. at a bar or self service salad bars and smorgasbords). Customer dining and drinking areas are excluded from this requirement, as food will have been already served to customers and no longer be for sale. However state and territory legislation may prohibit or restrict smoking in these areas.

Practicable measures the business could take in areas where there is exposed food and food contact surfaces include, for example:

- placing signs to alert people that smoking is not permitted
- not providing ash trays
- alerting persons found to be smoking or spitting that these activities are not permitted and asking them to stop
- asking the person to leave the premises if they continue to smoke or spit
- calling security staff or police for assistance if the person continues to smoke or spit and refuses to leave.

Division 5 — Cleaning, sanitising and maintenance

19 Cleanliness

The intended outcome is that food premises, fixtures, fittings and equipment, as well as those parts of vehicles that are used to transport food, are maintained to an acceptable standard of cleanliness.

19(1) A food business must maintain food premises to a standard of cleanliness where there is no accumulation of:

- (a) garbage, except in garbage containers;
- (b) recycled matter, except in containers;
- (c) food waste;
- (d) dirt;
- (e) grease; or
- (f) other visible matter.

To minimise the likelihood of food becoming contaminated and to discourage pests, food premises must be kept clean. To achieve this outcome, the business needs an effective cleaning system in place that ensures dirt, grease and waste material do not accumulate.

Garbage and recycled matter may be accumulated in containers before being collected or taken to a disposal centre, but the volumes must not exceed the containers' capacity. These containers should be covered if they pose a risk of attracting or harbouring pests (see clause 24 in this standard, and clause 6 in Standard 3.2.3).

Food waste is specifically listed to ensure it does not accumulate in places other than garbage areas in the premises. For example, food waste can build up on and behind equipment if these areas are not cleaned regularly.

'Other visible matter' includes other matter that might build up and affect the premises' standard of cleanliness and pose a risk of food contamination. Examples include mould and spider webs.

19(2) A food business must maintain all fixtures, fittings and equipment, having regard to its use, and those parts of vehicles that are used to transport food, and other items provided by the business to purchasers to transport food, to a standard of cleanliness where there is no accumulation of:

- (a) food waste;
- (b) dirt;
- (c) grease; or
- (d) other visible matter.

Fixtures, fittings, equipment and vehicles used to transport food should be kept clean to minimise the likelihood of food becoming contaminated and to discourage pests. Vehicles used to transport food include shopping trolleys (Standard 3.1.1 clause 1). Other items provided to customers by the business to transport food include shopping baskets.

Fixtures and fittings include items such as benches, shelves, sinks, hand washbasins and cupboards, whether permanently fixed or moveable. They include door handles, light fittings and switches, pest control devices, ventilation ducts, pipes and electric wiring.

Equipment (defined in Standard 3.1.1 clause 1) includes:

- all equipment used in handling food — e.g. refrigerators and coolrooms (including associated motors), bain marie units, carry baskets, and cooking and other processing equipment
- equipment used for cleaning food premises or equipment such as dishwashers, brooms, mops, buckets and hoses
- computers and similar electronic devices, keyboards, phones and other equipment that may be used by food handlers.

The cleaning processes a business uses for fixtures, fittings, equipment and parts of vehicles must ensure the things listed in (a) to (d) do not accumulate. Note that for effective cleaning it may be necessary to turn power off, or move or partly dismantle some items (e.g. cool room fans, frying machines, ventilators).

The phrase ‘having regard to its use’ in this subclause recognises that some accumulation of food waste, dirt, grease or other matter may be acceptable in certain circumstances. For example:

- Grease filters in range hoods are designed to trap and accumulate grease and so some accumulation of grease is expected. The business would be expected to change or wash these filters regularly to prevent too much grease building up in the filter and rendering it ineffective.
- Cleaning equipment may accumulate dirt, etc. as part of the cleaning process. The business is not expected to maintain the equipment free of food waste, dirt, grease or other visible matter but is required to maintain it to a standard of cleanliness appropriate for its use.

20 Cleaning and sanitising of specific equipment

The intended outcome is that specific equipment is cleaned and sanitised to minimise the transmission of infectious disease and to protect food from contamination.

Cleaning and sanitising are different processes, and both are needed to reduce the risks of foodborne illness. Cleaning involves the removal of dirt, grease and food debris. Sanitising is a process that destroys pathogenic microorganisms and sanitising should be done after cleaning. Even if equipment looks clean it could still be contaminated if it has not been sanitised.

Food businesses must ensure that staff assigned cleaning and sanitising tasks have the necessary skills and knowledge to perform these tasks correctly (as per clause 3). For example, if equipment is to be chemically sanitised, staff must know how to prepare and use an appropriate food-grade chemical sanitiser to ensure that the equipment is properly sanitised.

Further information on cleaning and sanitising is provided in Appendix 6.

20(1) A food business must ensure the following equipment is in a clean and sanitary condition in the circumstances set out below:

(a) eating and drinking utensils — immediately before each use; and

‘Clean and sanitary’ is explained in subclause 20(2) below. The importance of clean and sanitary eating and drinking utensils in preventing the spread of illness has been scientifically well established.

‘Immediately before each use’ does not necessarily mean that eating and drinking utensils must be cleaned and sanitised just before use — it means they must be cleaned, sanitised and protected from contamination between being used by one person and the next. If stored utensils are found to be not adequately protected (e.g. if signs of pests are seen in a utensil storage cupboard), it will be necessary to clean and sanitise them just before use.

Customers may retain eating and drinking utensils for their own reuse (for example, reusing their plate to serve themselves at a smorgasbord bar). However, if a used eating or drinking utensil is returned to the business, it cannot be used again until it has been cleaned and sanitised, whether or not the same person will be reusing it. For example, if a drinking glass is returned by a customer to a bar, it cannot be reused by any person until it has been cleaned and sanitised.

(b) the food contact surfaces of equipment — whenever food that will come into contact with the surface is likely to be contaminated.

This requirement includes any equipment used for handling food that comes into direct contact with food. Examples are chopping boards and other preparation surfaces, mixing bowls, storage containers, display units, equipment used to wash food, cooking and other processing equipment, and thermometers.

To prevent food from becoming contaminated when it comes into contact with surfaces, food contact surfaces need to be clean and sanitary. However, the circumstances when cleaning and sanitising will be needed will vary, depending on the type of food and the use of equipment. Some examples are provided below.

Processing raw food and ready-to-eat food

Surfaces must be cleaned and sanitised between being used for raw food and ready-to-eat food. This is so that pathogenic microorganisms present in the raw food do not contaminate the ready-to-eat food, which will not be cooked or further processed before eating. For example, if a person slices raw meat or poultry for cooking and then slices salad vegetables, the board and knife must be cleaned and sanitised between these two uses, or separate boards and knives used for each task. However, the same surface does not need to be cleaned and sanitised between the uses described above if the sliced raw meat and vegetables will both be cooked, for instance in a curry.

Processing potentially hazardous food

A food contact surface should be cleaned and sanitised if it has been used for long periods to prepare or process potentially hazardous foods. Food residues remaining on these surfaces could provide an ideal environment for pathogenic microorganisms to grow and could contaminate other foods that contact this surface.

Examples of common equipment used with potentially hazardous foods include meat slicers, blenders, juicers, hand-held food mixers (stick blenders, liquidisers, etc.), milk frothers and can openers. Documented cases of food poisoning have been traced to contaminated surfaces in these types of equipment.

Equipment should be dismantled if it is otherwise difficult to access the food contact surfaces to clean and sanitise them thoroughly. For example, if a meat slicer blade cannot be easily cleaned and sanitised in its place inside the equipment, the blade should be removed.

It is recommended that equipment being used with potentially hazardous food (particularly at temperatures between 5°C and 60°C) is cleaned and sanitised at least every 4 hours (in the US Food Code).

Example

Cleaning and sanitising equipment used with potentially hazardous food

A staff member in a deli is responsible for cleaning and sanitising a meat slicer. The meat slicer's blade is removed, scraped, thoroughly cleaned in hot soapy water and rinsed. The staff member then sanitises the blade with sanitiser X, which was confirmed as suitable for use with food equipment by the purchaser. The manufacturer's label is checked (or the company contacted) for instructions on:

- the correct dilution to prepare for use with food utensils and equipment
- whether to dip or spray the equipment in sanitiser
- how long to leave the sanitiser in contact with the equipment
- whether the sanitiser needs to be rinsed off (with potable water)
- the shelf life of the diluted sanitiser.

The bottle containing unused diluted sanitiser is labelled with the product name, the dilution, and the date. The manufacturer states that sanitiser X should be made fresh each day from the concentrated stock. So, the diluted sanitiser is used several times over the day and any leftover then discarded.

Anecdote

Smoothies made with contaminated stick blenders

An outbreak of foodborne illness occurred in an aged care facility. Investigations found that all the people who fell ill had eaten breakfast smoothies which had been prepared using a stick mixer (hand-held blender). When the mixer was tested for pathogenic microorganisms it was found to be contaminated. Further investigations found that the mixer stick had not been properly cleaned and sanitised between uses, so pathogens had multiplied in food debris and then been transferred to the next batch of smoothie.

The food business was advised to change its cleaning and sanitising procedure to make sure the stick mixer is thoroughly treated; for example by dismantling the components, brushing them with warm soapy water and then spraying with an appropriate sanitiser, ensuring all areas of the shaft where food debris could lodge (including high up the shaft) are treated. The business was also advised to regularly maintain the mixer, including checking the mixer's seals and replacing any that show signs of deterioration.

Processing multiple batches of food

The food contact surface of equipment used to prepare or process foods should be cleaned (and sanitised if necessary) between batches or lots, to avoid the risk of contamination being transferred from one batch to the next.

Chopping boards, wipe cloths and thermometers

- Chopping boards should be cleaned and sanitised between uses as described above. They should not be simply flipped over to provide a fresh food preparation surface, as food debris and microorganisms from the used side will then be transferred to the bench or mat underneath and could contaminate another surface.
- Cloths used to wipe down food contact surfaces should be clean and sanitary to avoid cross contamination between surfaces and utensils that are wiped. Cloths should be frequently replaced with fresh ones, or washed and then soaked in a sanitiser such as bleach between uses.
- Probe thermometers used with food should always be cleaned and sanitised (e.g. using alcohol wipes) before and after measuring the temperature of food.

20(2) In subclause (1), a ‘clean and sanitary condition’ means, in relation to a surface or utensil, the condition of a surface or utensil where it:

- (a) is clean; and
- (b) has had applied to it heat or chemicals, heat and chemicals, or other processes, so that the number of microorganisms on the surface or utensil has been reduced to a level that:
 - (i) does not compromise the safety of the food with which it may come into contact; and
 - (ii) does not permit the transmission of infectious disease.

When an eating or drinking utensil or a food contact surface is required to be in a ‘clean and sanitary condition’, the process used to clean and sanitise the utensil or surface must achieve the two outcomes specified in (a) and (b).

‘Clean’ has been defined (see Standard 3.1.1) and in effect the cleaning process must ensure that the utensil or surface looks clean, feels clean and smells clean.

Specific procedures to produce a ‘clean and sanitary condition’ have not been prescribed. However, as outlined above, cleaning and sanitising serve different purposes and both are required. Food businesses may use any procedure or a combination of procedures, provided that the two outcomes listed above are achieved.

Further detailed information on cleaning and sanitising, including procedures, is provided in Appendix 6. See also Jurisdictional websites and the Australian Standard AS4079-2 — 1 *Guide to Cleaning and Sanitizing of Plant and Equipment in the Food Industry* in Resources and References.

21 Maintenance

The intended outcome is that food premises, fixtures, fittings and equipment, and those parts of vehicles that are used to transport food and equipment are well maintained so that food safety and suitability are not compromised.

This clause includes a general requirement relating to maintaining the food premises, etc., and a more specific requirement for eating and drinking utensils.

21(1) A food business must maintain food premises and all fixtures, fittings and equipment, having regard to their use, and those parts of vehicles that are used to transport food, and other items provided by the business to purchasers to transport food, in a good state of repair and working order having regard to their use.

Examples of equipment (defined in Standard 3.1.1 clause 1), fixtures and fittings are provided in 19(2) above. Vehicles used to transport food include shopping trolleys (Standard 3.1.1 clause 1). Other items provided to customers by the business to transport food include shopping baskets.

Under this clause, only the part or parts of the vehicle used to transport food need to be maintained. For example, if the vehicle is used to transport chilled food the refrigeration unit must be maintained in good working order. However, if the vehicle engine needs repairing, it does not need to be fixed under this clause.

Food premises, fixtures, fittings and equipment and those parts of vehicles and other items that are used to transport food need to be properly maintained to:

- prevent contamination of food from flaking plaster, paint, timber, broken glass, leaking pipes, etc.
- enable effective cleaning and, if necessary, sanitising
- ensure pests do not gain access to the building or vehicle from holes in ceilings, walls, etc.
- ensure that equipment works as intended.

‘A good state of repair’ means that things are not broken, split, chipped, worn out, etc. ‘Working order’ means that the thing must work. These two matters relate to the use of the premises, fixture, fitting, equipment, vehicle or other items used for transporting food. If equipment is not being used or is being used (appropriately) for another purpose, it is not required to be in working order. For example a bain marie unit that no longer operates but is being used to display non-potentially hazardous food does not need to be kept in working order.

21(2) A food business must not use any chipped, broken or cracked eating or drinking utensils for handling food.

This clause specifically prohibits the use of damaged eating or drinking utensils for any purpose relating to the handling of food. Chipped, broken or cracked eating or drinking utensils are a food safety risk because they:

- cannot be effectively cleaned and sanitised and therefore may allow the transmission of infectious diseases; and
- might contaminate food directly if broken or chipped pieces fall into the food.

Division 6 — Miscellaneous

22 Temperature measuring devices

The intended outcome is that food businesses handling potentially hazardous food have a thermometer on-site to accurately monitor the food's temperature.

22 A food business must, at food premises where potentially hazardous food is handled, have a temperature measuring device that:

'Potentially hazardous food' is explained in Standard 3.2.2 and Appendix 1. Food 'handling' is defined in Standard 3.1.1 Interpretation.

Thermometers should be used to ensure that potentially hazardous food is kept under temperature control. This will minimise the growth of dangerous foodborne microorganisms and toxin production. A probe thermometer is recommended for measuring food's internal temperature during cooking, cooling and reheating.

All food businesses that handle potentially hazardous food must have an accurate thermometer on site. If a business has multiple premises, there must be a thermometer at each of the premises where potentially hazardous food is handled. More than one thermometer may be useful depending on the nature and scale of operations. Food businesses that do not handle any potentially hazardous food (e.g. a water carrier or a business that packages dry food) are not required to have a thermometer.

(a) is readily accessible; and

The thermometer must be kept in a place where it can be found and accessed whenever it is needed. It cannot, for example, be located in a locked cupboard or drawer, or away from the food premises at a person's home.

(b) can accurately measure the temperature of potentially hazardous food to +/- 1°C.

The thermometer must be capable of accurately measuring the temperature of food to within at least 1°C. For example, this means if the temperature measured is 5°C, the actual temperature of the food is somewhere between 4°C and 6°C. If a business does not know the accuracy limit of the thermometer, they should check the product's specification sheet or contact the supplier.

Types of thermometers

There are a variety of thermometers available for measuring food temperatures; common ones are listed in the table below. Probe thermometers with a digital readout are strongly recommended for measuring food temperatures.

Common types of thermometers

Thermometer type	Comments
Probe thermometers	<ul style="list-style-type: none"> • recommended for measuring food temperatures • inexpensive, simple to use and ideal for measuring the internal temperature of food • internal food temperature measured by inserting the probe into the food, usually at or near the centre of the food • can also measure surface food temperature, for example of packaged food
Infra-red (or 'laser') thermometers	<ul style="list-style-type: none"> • useful for measuring the surface temperature of food and utensils • not able to measure the temperature within food
Fixed thermometers on equipment (e.g. on bain maries and refrigerator units)	<ul style="list-style-type: none"> • useful for measuring the operating temperature of the equipment but not the actual food • not considered sufficient for measuring food temperatures — should be used in conjunction with another thermometer that directly measures food temperatures, such as a probe
Mercury and glass thermometers	<ul style="list-style-type: none"> • not generally recommended for use with food due to risks associated with breakages inside food — if used they should be encased in a shatterproof protector
Digital versus analogue thermometers	<ul style="list-style-type: none"> • either type may be used to measure food temperature, but digital is generally preferred for ease of reading

Thermometers with a temperature range of -50°C to 150°C are usually sufficient for measuring the temperature of food. However, if a business needs to measure the operating temperature of processing equipment, a thermometer with a wider temperature range may be required. Regardless, if the thermometer is used to measure the temperature of potentially hazardous food, it must still have an accuracy of $\pm 1^{\circ}\text{C}$.

Measuring the temperature of food

When measuring the temperature of food, the food business should be aware of the following:

- Temperature readings are not instant — when taking a measurement, the operator should wait until the temperature has stabilised before noting the temperature.
- The initial temperature of the thermometer probe can potentially affect the temperature of the food it is measuring — when taking measurements of hot and cold food with the same temperature probe, the probe should be allowed to return to near ambient temperature before placing it into the food at the other temperature extreme, to minimise incorrect readings.
- The temperature of a food being measured may not be even — for example if a food is being cooled in a refrigerator, the surface temperature may be cooler than the core of the food — where possible, measurements should be taken from the centre of the food.
- The temperatures of food within a refrigerator, or cold or hot display unit are likely to vary and just because one food is within an acceptable limit does not mean that other food within the same unit will also be within this limit. It is advisable to check different areas of the unit to confirm all food is under temperature control.
- Where a temperature is specified within the standard for potentially hazardous food, all parts of the food must be at this temperature. If any part of the food is not at the specified temperature, the food does not meet the temperature requirement.
- Fixed thermometers on equipment (e.g. on a bain marie unit) only show the operating temperature of the unit, not the actual food's temperature. While fixed thermometers give an indication that the unit is at the correct temperature, the food's temperature should still be measured directly with a probe thermometer.
- The temperature of frozen food can be measured by placing the length of a thermometer probe between two frozen packages of the food, or using an infra-red thermometer to measure the surface temperature of the food/ package. Note that this standard does not specify a temperature for frozen food.
- Packaged chilled food may also be measured by using an infra-red thermometer or placing the length of a thermometer probe between two packages of the food to avoid destroying the packaging.

Example

Monitoring food temperatures in hot-hold equipment

A variety of potentially hazardous foods are rapidly reheated and then placed in a bain marie unit to hold hot. The proprietor uses a probe thermometer to measure the temperature of all foods in the unit. The proprietor finds that the coolest part of the unit is at the back left-hand corner. Temperature measurements of food in the unit are then routinely taken at the back left-hand corner to ensure the temperature of the coolest food is known.

Cleaning and sanitising thermometers

Any part of a thermometer (usually the probe) inserted into food must be cleaned and sanitised before use, if this is necessary to prevent food contamination (see paragraph 20(1)(b)). For example, the probe will need to be cleaned and sanitised between being used for raw food and ready-to-eat food or if it has touched an unsanitary surface.

Cleaning and sanitising a probe thermometer should be done as follows:

- wipe away any food waste or other visible contamination
- wash the probe with warm water and detergent
- sanitise using an appropriate sanitiser (e.g. an alcohol wipe) or hot water (e.g. 77°C or hotter for at least 30 seconds)
- rinse with water if necessary (refer to sanitiser instructions)
- allow the probe to completely air dry or thoroughly dry with a single use towel.

Thermometer maintenance

The thermometer must be in a good state of repair and working order, as per clause 21. The food business must ensure that flat batteries are replaced, that the thermometer is fixed or replaced if it breaks and that it is maintained to an accuracy of at least $\pm 1^\circ\text{C}$.

A thermometer should be regularly calibrated, as it can lose accuracy over time or if it is dropped or bumped. The following things could be considered:

- The thermometer supplier's advice should be followed, but as an indication, it is recommended that thermometers are calibrated at least once every 12 months.
- The calibration of thermometers is best performed by the thermometer's supplier or by an accredited laboratory.
- Some thermometers have a calibration test device, which gives an indication of whether the thermometer is working correctly. However, this test may only check the readout instrument and not the temperature probe.
- Testing a thermometer's readout in an ice slurry and in boiling water can indicate whether the thermometer is working properly. For further details, see Jurisdictional websites in Resources and References. Note that water's boiling temperature may not be exactly 100°C, depending on the altitude above sea level.
- Only food businesses that have the necessary knowledge, skills and equipment to calibrate thermometers should do their own calibrations. If calibration shows the temperature readout needs adjusting, the instrument itself should not be altered; rather, the business should record how far the instrument is out and the date, for example on a sticker placed on the instrument. This record will allow the business to monitor how inaccurate the instrument becomes over time. If a correction of more than 1°C is required, the thermometer should be replaced or professionally adjusted.

Recording food temperatures

Temperature requirements in this standard are in:

- food receipt (subclause 5(3))
- food storage (subclause 6(2))
- food processing step (subparagraph 7(1)(b)(iii))
- food processing generally (subclause 7(2))
- cooling (subclause 7(3))
- reheating (subclause 7(4))
- food display (subclause 8(5))
- food transport (paragraph 10(b)).

Recording the temperature of potentially hazardous food may help the business to ensure safe limits are not exceeded and demonstrate that the food is kept under temperature control.

See also Jurisdictional websites for templates for temperature logs in Resources and References (e.g. Victoria's Food safety program templates on their Food businesses information website).

Example

Recording times and temperatures

Due to practicalities, a food business is not able to meet the times and temperatures specified for cooling potentially hazardous food in subclause 7(3). However, a food industry guideline provides advice on a safe alternative cooling system for the type of food the business is cooling. The food business uses a temperature logger to measure and record the cooling times and temperatures of the food to demonstrate that it is correctly following the alternative cooling system.

Further guidance on the use and calibration of thermometers is available from Jurisdictional websites in Resources and References.

23 Single use items

The intended outcome is that food businesses ensure that single use items:

- do not contaminate food
- do not allow the transmission of infectious diseases
- are not reused.

Single use items (defined in Standard 3.1.1 Interpretation) include such things as disposable gloves, drinking straws, disposable cutlery, plastic takeaway containers and pizza boxes.

23 A food business must:

(a) in relation to all single use items, take all practicable measures to ensure they do not come into contact with food or the mouth of a person if they are:

(i) contaminated; or

If the food business knows that a single use item is contaminated, the item cannot be used in contact with food or a person's mouth. For example, a single use item is contaminated if it is not visibly clean (e.g. has food debris, hair, insects, droppings, etc. on it).

(ii) reasonably suspected of being contaminated; and

If the food business reasonably suspects that a single use item is contaminated, the item cannot be used in contact with food or a person's mouth. For example, it may be reasonable to suspect a single use item has become contaminated if:

- the contact surface of the item is handled by a customer and placed back for use by another customer
- items are being stored together and some of the items show evidence of contamination by pests — it is reasonable to suspect that all the items have become contaminated
- the item is dropped on the floor
- the outer protective packaging has been damaged.

(b) in relation to single use items that are intended to come into contact with food or the mouth of a person:

(i) take all practicable measures to protect them from the likelihood of contamination until use; and

If a single use item becomes contaminated or is reasonably suspected of being contaminated, it cannot be cleaned and sanitised to enable it to be reused (see (ii) below). Therefore it is important that these items are protected from contamination before they are used.

Practicable measures that could be taken to protect the item include:

- enclosing the item in protective packaging or a container
- placing the item in a dispensing container for customers to access it, provided that the container enables the customer only to handle the item he or she is to use
- storing the item away from chemicals
- storing the item in an area that is sealed from animals, insects and small children, for example a dedicated food storage area
- when using disposable gloves, washing hands thoroughly before using gloves and between any glove changes.

(ii) not reuse such items.

To prevent food contamination and the transmission of infectious diseases, a food business must not reuse single use items if they will come into contact with food or a person's mouth. This is because items intended for single use have not been specifically manufactured to be able to be effectively cleaned and sanitised. Used items that are not effectively cleaned and sanitised may be contaminated with pathogens that could be transmitted to food or persons. Single use items are not designed to withstand processes used for cleaning and sanitising (e.g. heat or chemicals). These processes may affect the chemical properties of the items making them unsafe for use with food; for example, high heat treatment of some plastics may result in chemicals leaching into food.

Food businesses may reuse single use items for purposes that do not involve contact with food or a person's mouth. For example, used food containers could be reused to hold dirty cutlery.

Reuse by customers

Single use items provided to customers may be reused by customers. For example, customers may choose to refill disposable cups with drink at a self-service drink unit, or to reuse plastic takeaway containers in their homes.

Disposable gloves best practice

- Disposable gloves may be used for one task only, to prevent the transfer of pathogenic microorganisms or other contaminants. For example, gloves should be changed between handling raw food and handling ready-to-eat food, or between activities such as cleaning or removing garbage and handling food.
- Once a glove is removed from a hand, it cannot be reused.
- Hands should be thoroughly washed between glove changes to prevent transferring contamination from the used gloves to the fresh ones.

24 Animals and pests

The intended outcome is that food premises are kept free from animals and pests with the exception of assistance animals and, in certain circumstances, pet dogs.

Animals and pests can carry pathogenic organisms that can contaminate food. They may also contaminate food physically (e.g. fur, droppings and whole insects). The food business is therefore not permitted, except in certain circumstances, to have live animals on the premises and is required to prevent the entry of pests and to eradicate pests.

24(1) A food business must:

- (a) subject to subclauses (2) and (3), not permit live animals in areas in which food is handled, other than seafood or other fish or shellfish; and**

All animals are prohibited from areas where food is handled ('handling' is defined in clause 1) unless the live animal is seafood or other fish or shellfish. These particular exceptions allow food businesses to keep decorative fish in tanks and to keep and sell live seafood, fish and shellfish on the premises. However, food safety and food hygiene requirements must be followed to protect food from contamination; for example the process used to clean fish tanks should not pose a contamination risk to food handling areas.

Businesses may keep security animals outside, provided the area is not used for outdoor dining or drinking.

For home-based businesses, this clause prohibits pets (other than fish) in food handling areas such as the kitchen and food storage areas.

- (b) take all practicable measures to prevent pests entering the food premises; and**

To protect food or food contact surfaces from becoming contaminated, the food business must do all that it practically can to prevent pests from entering the food premises. Practicable measures should be based on risks to food safety and be appropriate for the type of premises. They could include, for example:

- generally positioning food products and operations to protect them from pest contamination, for example:
 - » enclosing food preparation areas as much as practicable
 - » limiting food preparation in open areas to low-risk foods (e.g. coffee)
 - » storing and displaying food under covers, behind protective guards, in enclosed display cabinets/fridges
 - » keeping uncovered food away from pest control devices
- providing and maintaining mesh screens on windows, doors and other openings
- for open-front food businesses, having small servery openings that can be opened and closed
- installing weather strips at the base of doors

- providing self-closing doors, double doors or air curtains at door entries
- keeping doors closed when not in use
- ensuring there are no holes, cracks or gaps in ceilings, walls and floors — including sealing around holes made to provide service pipes, wires, etc.
- keeping food and waste in sealed containers
- ensuring rubbish is regularly removed
- using pest repellent and trap devices (e.g. at entrances and exits).

See also Jurisdictional websites (food safety websites) in Resources and References.

(c) take all practicable measures to eradicate and prevent the harbourage of pests on the food premises and those parts of vehicles that are used to transport food.

Preventing pest harbourage

Practicable measures the business can take to prevent harbouring pests on food premises and those parts of vehicles that are used to transport food include:

- keeping the inside and outside of the premises and vehicle clean as per clause 19
- regularly checking the premises and equipment (such as under and behind appliances and containers, under benches and sinks, in cupboards and wall cavities) for signs of pest activity (e.g. droppings, scratch marks and feathers) and treating affected areas as necessary
- storing food and other items off the floor
- keeping food and waste in sealed containers
- ensuring rubbish is regularly removed
- ensuring there is no unnecessary equipment or fixtures stored on the food premises
- using pest repellents or lure traps
- implementing a suitable pest control plan, which may involve a licensed pest controller (further information is provided in Appendix 7).

Pest eradication

Practicable measures the business can take to eradicate pests on food premises and in parts of vehicles used for food transport include:

- implementing a pest control plan with regular pest inspections and treatments (further information is provided in Appendix 7)
- hiring a professional pest controller — while not a legal requirement it will be necessary if pests cannot be adequately controlled by the food business
- using chemicals (suitable sprays or baits) or physical means (traps, electric insect controls) to kill or remove pests from the food premises.

Care should be taken to ensure any chemicals or killed pests (e.g. from the use of automatic spray dispensers and electric insect controls) do not contaminate food or food contact surfaces. Control devices such as electric zappers should not be used directly above food preparation areas, exposed food or unwrapped packaging material. Similarly, chemicals should not be used near exposed food or packaging. If this is unavoidable, non-spray chemicals should be used. If food does become contaminated or is likely to have become contaminated by chemicals or killed pests, it must be disposed of. If eating and drinking utensils or food contact surfaces are contaminated during pest treatment, they will need to be cleaned and sanitised before they are used.

Example

Self-monitoring for pests

A business is self-monitoring for pest harbourage and eradication on the food premises. The proprietor draws up a pest control plan that outlines the pests being controlled, and the types and location of pest control being used (rodent baits, chemical sprays suitable for food premises and insect zappers). All baits are secured to the floor and date labelled, and insect controllers are placed in various locations around the premises, avoiding sites directly above food preparation and packaging areas. A checklist of areas to inspect includes reminders to check under and behind all appliances, sinks, storage and waste areas. Records of monthly inspections are kept to remind the business of when to repeat inspections or treatments, and to demonstrate the business is conducting regular checks.

See also Jurisdictional websites and food safety plans in Resources and References.

24(2) A food business must permit an assistance animal in areas used by customers.

'Assistance animal' (see subclause 24(4) below) is a dog or other animal trained to assist a person with a disability to alleviate the effect of a disability, as referred to in Section 9 of the *Disability Discrimination Act 1992*.

Persons with an assistance animal are permitted to take the animal with them into the dining and drinking areas of food premises and any other areas used by customers. However, assistance animals are not permitted in non-public areas, such as the kitchen.

24(3) A food business may permit a dog that is not an assistance animal to be present in an outdoor dining area.

'Outdoor dining area' is explained in clause 24(4). It is up to the food business whether or not they permit customers to have their dogs in outdoor dining areas and under what conditions (e.g. they may require that dogs are to be kept on the ground and leashed). Animals other than dogs or assistance animals are not permitted in outdoor dining areas.

A business that permits dogs in outdoor dining areas must ensure high standards of food safety and personal hygiene are maintained. The business must also comply with other regulations in place such as council bylaws.

24(4) In this clause —

assistance animal means an animal referred to in section 9 of the Disability Discrimination Act 1992 of the Commonwealth.

enclosed area means an area that, except for doorways and passageways, is substantially or completely closed, whether permanently or temporarily, by —

- (a) a ceiling or roof; and
- (b) walls or windows or both walls and windows.

outdoor dining area means an area that —

- (a) is used for dining, drinking or both drinking and dining; and
- (b) is not used for the preparation of food; and
- (c) is not an enclosed area; and
- (d) can be entered by the public without passing through an enclosed area.

Example

Permitting dogs in outdoor dining areas

A food business has an open dining area outdoors and chooses to permit pet dogs in this area as per subclause 24(3). However, in winter the food business encloses this area with café blinds and a retractable awning, making the area temporarily but substantially enclosed (i.e. no longer an 'outdoor dining area'). Subclause 24(3) would not apply during the period this winter set-up is used.

25 Alternative methods of compliance

This clause outlines how food businesses can demonstrate that an alternative system they have in place will not adversely affect the microbiological safety of the food. Food businesses are permitted to have safe alternative systems for the temperature control of potentially hazardous food as well as for the cooling and heating of this food.

Food businesses are permitted to use safe alternative systems for compliance with the following subclauses:

- 5(3) Food receipt (the business transporting the food may demonstrate it has a safe alternative system in place)
- 6(2)(a) Food storage
- 7(3) Cooling
- 7(4) Reheating
- 8(5)(a) Food display
- 10(b) Food transportation.

25 Without limiting the ways in which a food business can demonstrate that the temperature and any heating or cooling process it uses will not adversely affect the microbiological safety of food, a food business satisfies this requirement by complying with:

If a food business is not complying with the temperature and, where specified, the time and temperature requirements of these clauses, it must be able to demonstrate to the appropriate enforcement agency that the alternative system it is using is safe. 'Safe' in this context means that the microbiological safety of the food is not adversely affected; that is, that the alternative system will not allow foodborne pathogens to grow to unsafe levels. The business is not required to demonstrate that the alternative system will not adversely affect the physical or chemical safety of the food.

Several options for demonstrating compliance are listed in paragraph (a), (b) and (c) below, although businesses are not restricted to these options.

(a) a food safety program that meets the requirements for food safety programs in the Act, regulations under the Act, or a food safety standard other than this Standard;

Certain food businesses are obliged to have food safety programs, including:

- businesses that serve or process potentially hazardous food for service to vulnerable people, in accordance with Standard 3.3.1 — Food Safety Programs for Food Service to Vulnerable Persons
- seafood businesses that engage in the primary production or processing of, or manufacturing activities concerning, bivalve molluscs in accordance with Standard 4.2.1 — Primary Production and Processing Standard for Seafood
- businesses producing manufactured and fermented meats, in accordance with Standard 4.2.2 — Primary Production and Processing Standard for Poultry Meat and Standard 4.2.3 — Primary Production and Processing Standard for Meat
- businesses required by the relevant state or territory to develop and implement a food safety program, in accordance with requirements for that program in the state or territory where the business is located.

Businesses using an alternative system for potentially hazardous food as part of an approved food safety program will satisfy the requirement. Further information on food safety programs and templates is available from jurisdictions (see websites in Resources and References). For example, the Victorian Department of Health produces a series of templates for food safety programs to enable businesses to comply with the requirements of the Victorian Food Act (see their Food businesses information web link).

(b) if no such requirements apply to the food business, a 'food safety program' as defined in this Standard;

'Food safety program' is defined in clause 1. If a food business is not legally obliged to implement a food safety program but wishes to demonstrate that it has a safe alternative system in place for the temperature control of potentially hazardous food through a food safety program, the program must be in accordance with this definition.

(c) a process that according to documented sound scientific evidence is a process that will not adversely affect the microbiological safety of the food; or

Food businesses may use an alternative system that is based on documented sound scientific evidence to demonstrate their system is safe. This evidence may be from, for example:

- published scientific papers
- written advice from expert organisations or persons — for example, validation of a process through laboratory testing by a NATA-approved agency
- Appendix 2 — The use of time as a control for potentially hazardous food (and associated modelling)
- Appendix 5 — Cooling of meats after cooking.

The evidence will need to specify the time and temperature that potentially hazardous food can be safely kept without affecting the food's microbiological safety. For example, Appendix 2 indicates that generally, ready-to-eat potentially hazardous food can be safely kept at temperatures between 5°C and 60°C for up to 4 hours.

The food business will need to demonstrate that the advised times and temperatures are not exceeded in the alternative system it uses. For example, if a business wishes to use the '2-hour/4-hour rule' described in Appendix 2, it will need to use a process that ensures food is not kept at ambient temperatures for more than 4 hours. It should be able to demonstrate this process was followed, for example through documented standard operating procedures, the use of time-identifying labels or other appropriate means that can be checked. An example template for logging time is provided in Appendix 8.

Examples on using time as an alternative control (including the 2-hour/4-hour rule) are provided in Appendix 2.

(d) a process set out in written guidelines based on sound scientific evidence that are recognised by the relevant food industry.

Industry guidelines based on sound scientific evidence may be used by food businesses as an alternative method of compliance. Industry sectors that may develop these guidelines include restaurant and catering, hotel, bed and breakfast, meat, dairy, bakery and supermarket sectors. An example is Meat and Livestock Australia's Guidelines for the Safe Manufacture of Smallgoods. Industry associations can be contacted for advice on whether relevant and recognised guidelines are available.

