

Act on Food Safety

Winter 2009

Temperature Measuring Devices

A food business that stores, transports, prepares, cooks, handles or sells potentially hazardous food (PHF) must have a temperature measuring device (thermometer) to measure the temperature of PHF. A thermometer is essential in ensuring that food is kept at safe temperatures.

The thermometer must be kept at the food premises at all times and be readily available for use. If a food business has several food premises, it will need a thermometer for each of the premises. The thermometer must accurately measure the temperature of food to $\pm 1^{\circ}\text{C}$. This means that when the thermometer shows a temperature of 5°C , the actual temperature will be between 4°C and 6°C . Information on measuring the accuracy of thermometer is provided elsewhere in this newsletter.

Monitoring and recording the temperature of PHF will ensure that food is:

1. transported and delivered under temperature control;
2. processed at the correct temperature;
3. stored/kept at the correct temperature in a refrigerator, display unit, cool room, bain-marie unit, sandwich display unit; and
4. cooled and re-heated safely.

What sort of thermometer is needed?

The type of thermometer needed might vary depending on the type of activities undertaken by the food business.

A food business will need a probe thermometer which can be inserted into food. This can measure the internal temperature of food because the surface temperature may be warmer or colder than the temperature at the core of food. Thermometers with a narrow temperature range provide greater accuracy at a cheaper price.

Checking temperatures of food

- Make sure that the thermometer is cleaned and sanitised.
- Insert the probe into the food and wait till the

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part 2



reading has stabilised before making a note of it. Measure different parts of food to get a better reading. Remember that the temperature at the core of food may be different from the surface temperature. For example, when cooked food is being cooled in the refrigerator, the core of food will take the longest to cool. Therefore, when checking the temperature of this food, make sure that you check the core of the food.

- If using the same thermometer to measure hot and cold food, wait for the thermometer to return to room temperature before using it again.
- While measuring food in the refrigerator/display unit measure different foods as the refrigerator/display unit will have colder and hotter areas.
- For frozen food and packaged chilled food, place the length of the probe between two packages of food. This way the package need not be opened but this will only give an approximate reading.
- Measure the warmest area of a cool room or the coldest area of a hot display unit.
- Clean and sanitise the thermometer between each use.

Cleaning and sanitising thermometers

Any part of the thermometer that is inserted into food to measure the temperature becomes a food contact surface. Therefore, it must be cleaned and sanitised before and between uses. If the probe thermometer is not cleaned and sanitised between each use, food poisoning bacteria from one food may be transferred to another food via the thermometer. This may also happen when the same thermometer is used to measure the temperature of raw food and ready to eat food.

How to clean and sanitise your thermometer

- wipe away any food waste or other

visible contamination;

- wash the probe with warm water and detergent to remove any grease and food particle;
- sanitise the probe appropriately – e.g. use alcohol wipes or very hot water;
- rinse off the sanitiser if necessary; and
- dry thoroughly with a disposable towel or let it air dry.

Accuracy of thermometer

Thermometers have to be accurate to ensure that temperatures are correctly measured. Replace batteries when necessary. Maintain the accuracy of thermometer by following the instructions that come with the thermometer. Ask the company that supplied your thermometer how often the thermometer should be checked for accuracy. It is best to have your thermometer regularly checked and maintained by the supplier of the thermometer.

However, if you would like to check the accuracy of your thermometer yourself, use the following method.

1. Place some ice into a container with a small amount of cold water. The ice should not float if the correct amount of water is used.
2. Mix into a slurry and insert the thermometer probe.
3. Leave it for about three minutes.
4. Use thermometer to check and note the temperature. It should read 0°C.
5. Do this three times and compare the temperatures recorded.
6. If the readings vary by more than 1°C, get the thermometer checked by the supplier.

Source: www.foodstandards.gov.au

Infrared thermometers

Some food businesses have infrared thermometers. They can be pointed at food to measure its surface temperature. As they are not inserted into food, they cannot accurately measure the core temperature of food. Therefore, to accurately measure core food temperature, a probe thermometer or an infrared thermometer with a probe attachment would be required.

Thermometer fixed to equipment

Some equipment that is used to store and display food (cool rooms, bain-marie units, sandwich display units) may come with a thermometer fixed to the unit. This thermometer will only measure the operational temperature of the unit, but it will not measure the actual temperature of the food. So, a probe thermometer is still needed to check the actual temperature of the food stored or displayed in these units.

For more information on these and related topics

ACT Health website: www.health.act.gov.au

1. Information sheet: Temperature Danger Zone
2. Food Safety Poster: Temperatures for food

Food Standards Australia New Zealand (FSANZ) website: www.foodstandards.gov.au

FSANZ Fact Sheets: Thermometers and using them with potentially hazardous food

NOTE Information in this newsletter is intended as a summary only and cannot cover all situations. Food businesses are required to comply with all the provisions of the Australia New Zealand Food Standards Code and *Food Act 2001*, not just the contents of this newsletter. Please contact the Health Protection Service on 6205 1700 for more information on any of the articles in this newsletter or questions regarding food safety. We welcome and look forward to your feedback.

THROUGH THE MICROSCOPE



Food, Bugs and Disease

As we learnt in the last issue of this newsletter, microorganisms are present everywhere in our environment including food. When food, which has sufficiently large number of microorganisms, is eaten it may cause food borne illness. Some microorganisms produce toxins in food and these toxins may then cause food borne illness.

How many microorganisms are needed to cause food borne illness?

A very large number of microorganisms are usually needed to cause illness but it is impossible to be precise. If a few microorganisms are present in food to begin with, they can grow quickly to large numbers in the right conditions. The factors that affect the growth of microorganisms are:

- type of microorganism
- temperature
- time
- nutrients
- water and
- pH

Type of microorganism

Certain bacteria and viruses are only needed in small

numbers to cause food poisoning. Some microorganisms are not killed by normal cooking and can survive at high temperatures. Under the same conditions, some microorganisms multiply at a slower rate and some at a faster rate.

Temperature and Time

Food poisoning bacteria grow best in the temperature range between 5°C and 60°C. This is referred to as the 'temperature danger zone'. This means that potentially hazardous food should be kept either very cold or very hot, so that microorganisms cannot grow and multiply to large numbers. When temperature is increased, as in cooking, many microorganisms are killed. When the temperature is decreased, as in refrigeration/freezing, the growth of microorganisms is slowed down. A failure such as refrigerator break down, could lead to conditions where microorganisms are able to multiply.

Time and temperature are interrelated. If food is left in the temperature danger zone (between 5°C and 60°C) even for a few hours, microorganisms can multiply to dangerous levels.

The time that a microorganism is at a certain temperature will determine how fast it is able to multiply. For example, E.coli bacteria take 7-10 hours to double in number at a temperature of 10°C, but take only 90 minutes to double in number at 20°C and just 15 minutes at 37°C.

Source:

www.science.org.au – when bugs have you on the run

Nutrients

Most foods contain enough nutrients for microorganisms to grow. This is especially the case with high risk foods such as dairy, egg products, meat, poultry and seafood.

Water

Microorganisms need water for their growth. Without water, growth may slow down or stop. That is why dried foods do not spoil.

pH

It is the measure of acidity or alkalinity and it is also important for microbial growth. At certain pH values, microorganisms may stop growing. This is the case with highly acidic foods, which have low pH.

– to be continued –

Cross Contamination of Food

Food can become contaminated by microorganisms from many different sources when it is handled and stored. Cross contamination of food occurs when microorganisms from a contaminated object are transferred to food, either by direct or indirect contact. Cross contamination can cause food borne illness.

Food, human hands, wash cloths, wipes, storage containers, food contact surfaces, utensils and equipment can all contaminate food.

Cross contamination can occur in three ways:

food to food: for example, juice of raw meat dripping onto cooked vegetables may contaminate the vegetables.

people to food: for example, a food handler handling food, after using the toilet and without washing hands properly, may contaminate the food.

equipment/food contact surface to food: for example, using an unclean slicer while preparing food may contaminate the food.

How to prevent cross contamination of food?

A few simple steps can help prevent cross contamination and eliminate food borne illness.

- always wash and dry hands thoroughly before handling food
- wash fruit and vegetables thoroughly before use
- keep food covered

- keep ready to eat food away from raw food
- use separate chopping boards and knives for raw and ready to eat food
- use separate equipment for raw and ready to eat food
- clean and sanitise utensils/equipment between and after each use
- store raw food at the bottom of fridge
- store food in clean containers
- keep stored food off the floor
- clean and sanitise cloths used for wiping benches, tables and equipment
- store chemicals and other non-food items away from food
- use clean transport vehicles and protect food from contamination during transport
- keep pets away from food and food preparation areas and equipment
- do not use hand wash basins for storing food or equipment
- never let raw meat or poultry, or their juices, come in contact with other food
- avoid unnecessary contact with food
- do not handle food when sick/ill
- do not use apron to wipe hands
- do not use the same cloth to wipe benches, cutlery, utensils and tables
- do not reuse a towel, which has been used to wipe a counter, to wipe hands

The best way to stop food poisoning is to prevent the food from being contaminated. It is best to handle food in such a way that the microorganisms are unlikely to multiply.

Contact details

Health Protection Service,
ACT Health

Phone (02) 6205 1700

Fax (02) 6205 1705

Email hps@act.gov.au

Web www.health.act.gov.au

Address

Howard Florey

Centenary House,

25 Mulley Street, Holder 2611 **Postal Locked Bag 5, Weston Creek ACT 2611**

ENGLISH	If you need interpreting help, telephone:
ARABIC	إذا احتجت للمساعدة بالترجمة الشفوية، اتصل بالهاتف:
CHINESE	如果您需要口译员帮助，请拨电话:
CROATIAN	Ako trebate pomoć tumača telefonirajte:
DARI	اگر به کمک ترجمه شفاهی ضرورت دارید، به این شماره تیلیفون کنید:
GREEK	Αν χρειάζεστε διαμετρήσει τηλεφωνήσετε στο:
ITALIAN	Se avete bisogno di un interprete, telefonate al numero:
LAO	ຖ້າ ທ່ານຕ້ອງການບໍລິການຕີແປງດ້ວຍສຽງ ໂທລະສັບສູນ:
MALTESE	Jekk ghandek bżonn l-ghajjnuna t'interpretu, ċempel:
PERSIAN	اگر به ترجمه شفاهی احتیاج دارید به این شماره تلفن کنید:
RUSSIAN	Если вам нужна помощь переводчика, звоните по телефону:
SPANISH	Si necessita la asistencia de un intérprete, llame al:
VIETNAMESE	Nếu bạn cần một người thông ngôn hãy gọi điện thoại:
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TRANSLATING AND INTERPRETING SERVICE	
131 450	
Canberra and District – 24 hours a day, seven days a week	

