Food Manufacture

Temperature Control

Lesson 6

Understand the importance of temperature control in food manufacturing to ensure food safety is never compromised.

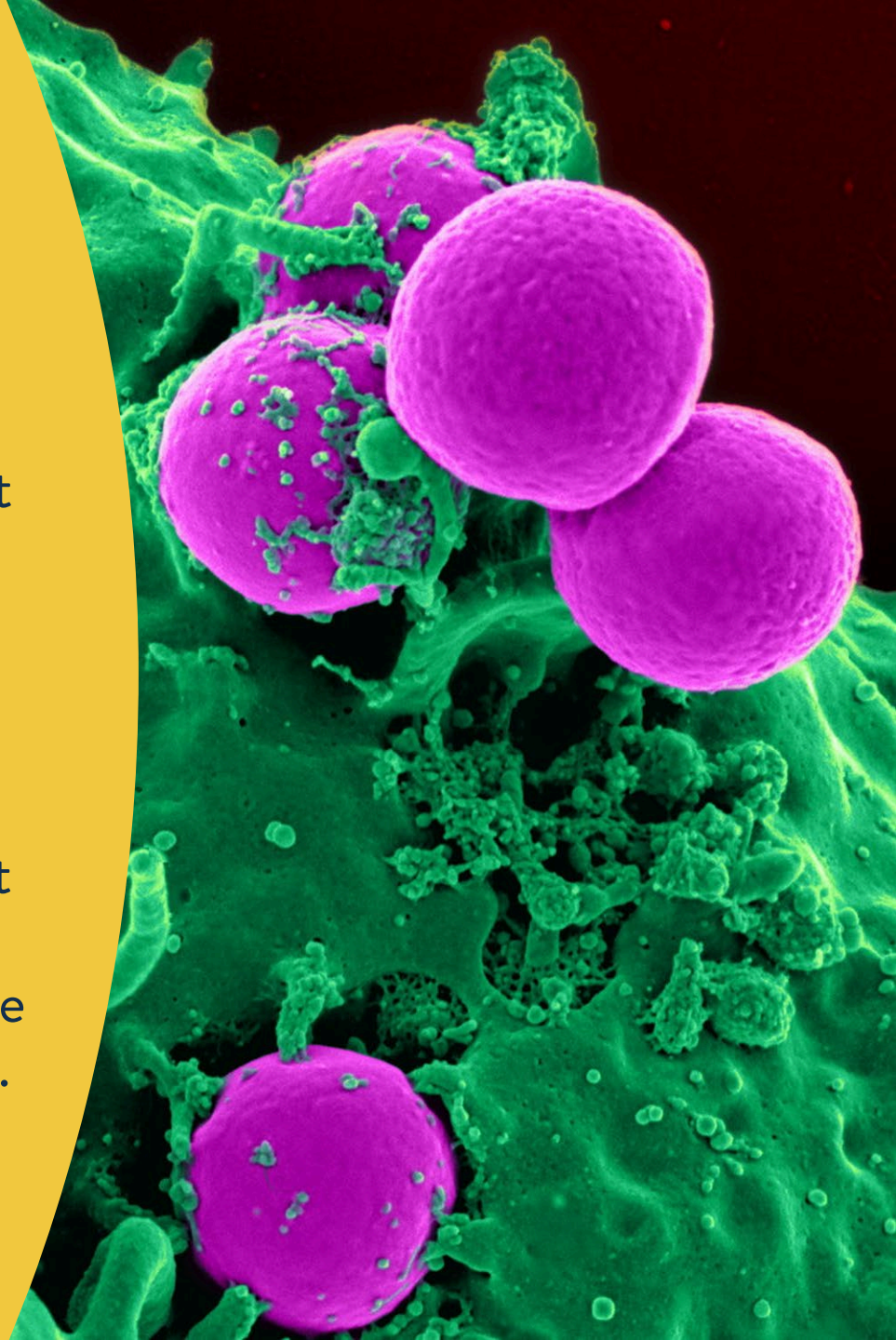
Defrosting product is also known as thawing. It involves increasing the temperature of the product from a frozen condition to a chilled condition.

There are 4 main methods of defrosting:

- In a refrigerator with a controlled temperature of below 8oC
- Using a microwave of specialized defrosting machinery
- It may be part of the cooking process e.g., frozen vegetables which are designed to be cooked from frozen
- Submerging in cold potable water

The safety method to follow is defrosting using a refrigerator at temperatures between 0°C and 8°C. Food factories have controlled refrigerated areas dedicated for defrosting product safely.

When product is frozen any bacteria is not killed it stays dormant and doesn't grow, but if the product enters the temperature danger zone (between 8°C and 63°C) bacteria will grow. Room temperature is in the temperature danger zone, so it is essential that product is not defrosted at room temperature but kept below 8°C to defrost.



If a product is accidently defrosted it must not be refrozen as it may not have been defrosted in a safe way following appropriate temperature control requirements and the product may have entered the temperature danger zone.

A less common method is to submerge the product in cold water. It is best to use a clean sink and run cold potable water over the product ensuring no contamination from splashes occurs. It is not recommended to use this method on raw meat and poultry due to the high contamination risk. This method should be only carried out for 2 hours or less.

Product being defrosted must be labelled appropriately for traceability purposes, to monitor how long it has been defrosting for and when it needs to be used by.

Large items such as a frozen turkey can take longer to defrost, therefore it is important to plan production schedules around defrosting times. This can become a complex procedure with a knock-on effect.

Core temperatures of the product must be taken to make sure the product is fully defrosted. Partially defrosted products will cause a food safety risk when being cooked as part of the product will not reach an appropriate core temperature.

Once product is defrosted it must be used within 24 hours. Production planning is also important when considering this.

When a product is only partially defrosted it is known as tempering. The product is usually defrosted to a temperature of -4°C to -1°C. This process is sometimes used with meat to keep the meat firmer so it can easily be sliced or flaked but it is not cooked from this low temperature.

Revision Activity 6

List 2 methods of defrosting?