Food Manufacture

Heat processing

Lesson 1

Become competent in heat processing understanding processes such as blanching, pasteurisation, sterilisation, evaporation, dehydration, smoking, frying, baking and roasting.

foodsphere.co.uk

Learning objectives

- Define the term heat processing
- State the importance of checking a product core temperature
- Identify and describe the three types of heat transfer conduction, convection and radiation
- Explain the process of blanching and its function
- Describe the process of pasteurisation, its function and time temperature requirements of products

Learning objectives

- Outline the process of sterilisation, its function and they types of sterilisation
- Recognise the function of evaporation of products and how the process works
- Explain the process of dehydration, the types of dehydration and why it is performed
- Outline how products are smoked and why they are smoked
- Describe how a product is cooked through baking and roasting and the function of baking and roasting

Learning objectives

- Identify the different types of ovens used in baking and roasting
- Understand what happens to a product when it is fried and why a product is fried
- Recognise how and why fryer oil quality is monitored
- State the importance of heat processing training for staff

Heat processing is also known as cooking this is when the products core temperature is increased to ideally 70°C or above.

Raw foods such as meat contain bacteria so heating the food to achieve a core temperature of above 70°C should kill the bacteria making the food safe to eat.

It is recommended that the food holds a core temperature of 70°C for 2 minutes. A core temperature is the temperature of the product in the centre of the thickest part (the last part of the product to heat).

FOODSPHERE

During cooking a process known as heat transfer occurs. This is the thermal energy transfer exchange between two objects. Energy is measured in Joules.

There are three types of heat transfer:

- Conduction
- Convection
- Radiation

Conduction

Conduction involves the direct transfer of heat from one object to another e.g. a burner heating a grill pan and then the heat is transferred to the food in the grill pan. It will cook the food from the outside to inside.

Convection

Convection involves the circulation of molecules (molecules make up a substance). The molecules nearest the heat source become warm, then rise and are replaced with unheated molecules e.g. water moving in a boiling pan or a fan system in a convection oven.

Radiation

Radiation of the food is when heat and light waves hit and penetrated the food. There are two main radiation cooking methods:

1. Infrared radiation e.g. a toaster oven
2. Microwave radiation e.g. a microwave oven

There are several methods of heat processing of food:

- Blanching
- Pasteurisation
- Sterilisation
- Evaporation
- Dehydration
- Smoking
- Baking and roasting
- Frying

Revision Activity 1

Name three heat processing methods ?