

Overview

This standard is about the principles of energy transfer in heating food technology. It includes understanding the science of heat transfer in the form of heating, as it is applied in support of food and drink processing.

This standard applies to you if you are a manager, technician or consultant who has responsibility for controlling any heating technologies employed in the production of food and drink products. It is expected that you will control and support others with regard to the development and implementation these technologies.

Performance criteria

You must be able to:

See

IMPPO208S Control heat treatment in food manufacture

Principles of energy transfer in heating food technology

Knowledge and understanding

You need to know and understand:

- 1 the applications of heat treatment in the food and drink sector
- 2 sources of heat both direct and indirect
- 3 the changes that occur in food and drink products when they are heated
- 4 how and why heat treatments are controlled and monitored
- 5 how energy efficiency is optimised
- 6 what happens at molecular level when food substances are heated
- 7 how intensity of heat can be measured in food substances
- 8 the use of Celsius, Fahrenheit, and Kelvin scales for measuring temperature
- 9 the difference between temperature and energy needed to heat a food substance
- 10 how energy values used to heat food are measured using the calorie, British Thermal Unit and joule scales
- 11 how energy is transferred by radiation
- 12 how energy is transferred by conduction
- 13 how energy is transferred by convection
- 14 the characteristics of energy transfer to foods in ovens and convection ovens
- 15 the characteristics of energy transfer to foods from surface heat contact
- 16 the characteristics of energy transfer to foods in retorts
- 17 the characteristics of energy transfer to foods in microwave ovens

Principles of energy transfer in heating food technology

Developed by	Improve
Version Number	2
Date Approved	November 2015
Indicative Review Date	September 2019
Validity	Current
Status	Original
Originating Organisation	Improve
Original URN	IMPFT119K
Relevant Occupations	Manufacturing technologies
Suite	Food Technology
Keywords	Food; Energy; Heat; Heating; Technology