

## Overview

This standard is about the principles of irradiation in food technology.

This standard is for you if you require a broad scientific understanding of ionic radiation technology. You need to understand the effects of ionic radiation on foods and its evidence base. You need to know the types of radiation sources and methods used and the comparable effectiveness. You also need to know what the economics of the process are and the consumer awareness of this technology.

### Performance criteria

You must be able to:      See  
IMPPO213S Control conditioning in food manufacture

## Knowledge and understanding

You need to know and understand:

- 1 what the physical advantages of ionising radiation can be; reducing microbial spoilage and insect damage, improving organoleptic properties, reducing need for chemical additives, extending un-refrigerated product life
- 2 how ionising radiation can cause the formation of reactive molecules and free radicals in some foods
- 3 how ionising radiation can cause the production of off-flavours and the degradation of vitamins in some foods
- 4 what the evidence is for the absence of residual radioactivity in irradiated foods
- 5 what the evidence is for the breakdown of food components and absence of toxicity in irradiated foods, being comparable to that in non-irradiated foods
- 6 when and what types of irradiated foods were allowed to be sold and consumed in the UK
- 7 the two types of radiation used as sources of ionising radiation for foods; electron produced linear accelerators, gamma rays from decay of cobalt 60 and caesium 137
- 8 the advantages and disadvantages of the use of the two types of radiation sources
- 9 how radiation sterilisation or radappertisation is carried out, its characteristics and equipment used
- 10 why products which are sterilised by radappertisation require aseptic packaging
- 11 how radiation pasteurisation or radurization is carried out, its characteristics and equipment used
- 12 the success and effects of ionising radiation on potatoes, vegetables, fruit and poultry products
- 13 the economics of food irradiation and continuous processing

## Principles of irradiation in food technology

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**Developed by** Improve

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