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Nota di contenuto	Food Biodeterioration and Preservation; Contents; 7.7 Conclusions; 8.2.8 Microbial interactions; Contributors; Preface; 1 Control of Biodeterioration in Food; 1.1 Overview; 1.2 A summary of the different kinds of biodeterioration; 1.2.1 Chemical biodeterioration; 1.2.2 Physical biodeterioration; 1.3 Kinds of living organisms involved in biodeterioration; 1.3.1 Bacteria; 1.3.2 Fungi; 1.3.3 Algae, mosses and liverworts; 1.3.4 Higher plants; 1.3.5 Insects; 1.3.6 Birds, mammals and reptiles; 1.4 Food biodeterioration; 1.4.1 The composition of food 1.5 A description of the mechanisms of food biodeterioration1.5.1 Fermentation; 1.5.2 Fermentation biochemistry; 1.5.3 Putrefaction; 1.5.4 Lypolysis; 1.6 Micro-organisms involved in biodeterioration reactions; 1.6.1 Factors that affect microbial growth; 1.6.2 Bacteria; 1.6.3 Moulds; 1.6.4 Yeasts; References; 2 Principles of HACCP: The Importance of HACCP Systems in Food Manufacturing; 2.1 Introduction and historical perspective; 2.2 The HACCP principles and codex (CAC

1997); 2.3 HACCP implementation: important considerations; 2.3.1 Prerequisite programmes  
2.3.2 Application of the HACCP principles and the importance of training  
2.4 The importance of HACCP in food manufacturing: the preventative mindset; 2.4.1 Food design; 2.4.2 Food manufacturing; 2.4.3 Globalization and trade; 2.5 The legal position; 2.6 Closing thoughts; Appendices; Appendix 1: Example of the make-up of an HACCP team; Appendix 2: Example of a product description; Appendix 3: Examples of process flow diagrams; Appendix 4: Hazard analysis tool as an example guide; Appendix 5: Examples of hazard analysis and CCP decision logic; Appendix 6: Example of the HACCP control chart  
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3 Thermal Processing; 3.1 Introduction; 3.2 Product classification; 3.3 Microbial destruction; 3.3.1 End-point thermal death time curve; 3.3.2 Survivor curve; 3.3.3 Thermal resistance curve; 3.4 Cold-spot temperature histories; 3.5 Lethality calculations; 3.5.1 The general method; 3.5.2 Other calculation methods; 3.6 Quality attributes; 3.7 Retort systems; 3.7.1 Steam retorts; 3.7.2 Overpressure retorts; References; 4 Food Chilling; 4.1 Theory; 4.1.1 Effect of chilling on micro-organisms; 4.1.2 Effect of chilling on enzymes and biochemical reactions  
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4.1.4 Effect of chilling on physiological processes; 4.2 Chilling operations; 4.3 Chilling equipment; 4.3.1 Refrigeration systems; 4.3.2 Moving air; 4.3.3 Direct contact; 4.3.4 Jacketed heat exchangers; 4.3.5 Immersion/spray; 4.3.6 Ice; 4.3.7 Vacuum; 4.3.8 Cryogenic; 4.4 Chilled storage; 4.4.1 Controlled atmosphere storage rooms; 4.5 Transportation; 4.5.1 Overland transport; 4.5.2 Sea transport; 4.5.3 Air transport; 4.6 Retail display; 4.6.1 Unwrapped products; 4.6.2 Wrapped products; 4.7 Conclusions; References; 5 Freezing; 5.1 Introduction  
5.2 The physical and chemical aspects of freezing

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#### Sommario/riassunto

This book discusses how the agents of food biodeterioration operate, and examines the commercially-used industrial methods available to control them, allowing the production of safe and wholesome foods. There is an emphasis on the equipment employed to carry out the various methods of preservation.

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