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Nota di contenuto	Contamination Control in Practice; Contents; Preface; 1 Contamination Control; 1.1 Introduction; 1.2 Contamination Control - A Holistic Technique; 1.3 Source, Dispersion and Deposition of Contaminants; 1.3.1 Dead Particles; 1.3.2 Microorganisms; 1.4 The World of Microorganisms; 1.4.1 Bacteria; 1.4.2 Algae; 1.4.3 Fungi; 1.4.4 Protozoa; 1.4.5 Viruses; 1.5 The Growth of Microorganisms; 1.5.1 Growth Systems; 1.6 Detection of Contaminants; 1.7 Dispersion and Processes; 1.7.1 Hygienic Design; 1.8 Choice of Cleaning Technique; 1.9 Conclusion; 2 Separation; 2.1 Introduction; 2.2 Separation Techniques 2.2.1 Absorption Processes2.2.1.1 Gas Absorption; 2.2.1.2 Liquid Absorption; 2.2.2 The Adsorption Process; 2.3 The Sedimentation Process; 2.2.4 The Filtration Process; 2.3 Conclusion; 3 Filtration Technology; 3.1 Introduction; 3.2 Filtration; 3.3 Dead-end and Cross-

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	flow Filtration; 3.4 Different Types of Contaminants; 3.5 Conclusion; 4 Microfiltration; 4.1 Introduction; 4.2 Coarse Filtration; 4.3 Clarification Filtration; 4.4 Polishing Filtration; 4.5 Microbiological Reduction Filtration and Sterile Filtration; 4.6 Conclusion; 5 Filter Mechanisms; 5.1 Introduction; 5.2 Mechanical Retention 5.2.1 Surface Filters5.2.2 Pre-coat Filters; 5.3 Adsorptive Retention; 5.3.1 Retention Due to Inertial Impacting; 5.3.2 Retention Due to Diffusion Interception; 5.3.3 Depth-type Filters; 5.4 Conclusion; 6 Different Types of Microfiltration Filters; 6.1 Introduction; 6.2 The Depth Filter; 6.3 The Membrane Filter; 6.4 Depth Filters with Fixed and Unfixed Pore Structure; 6.4.1 Particle Release; 6.4.2 Fiber Release; 6.4.3 Channeling; 6.5 Development Due to Increased Demands; 6.6 Conclusion; 7 Filter Rating; 7.1 Introduction; 7.2 Contaminants; 7.3 Removal Ratings; 7.3.1 Nominal rating 7.3.2 Absolute Rating7.3.3 Titre Reduction; 7.3.4 Beta-Value; 7.4 Conclusion; 8 Choosing a Filter; 8.1 Introduction; 8.2 Dirt Collecting Characteristics; 8.3 Overall Process Demands; 8.4 Cleanliness Demands; 8.4.1 Sterility; 8.4.2 Industrial Cleanliness; 8.5 The Process Flow; 8.6 The Pressure of the Process Flow; 8.6.1 The Total Pressure; 8.6.2 Differential Pressure; 8.7 Viscosity of the Process Flow; 8.8 Compatibility and Temperature of the Process Flow; 8.9 Depth Filter or Membrane Filter; 8.9.1 Choice of Filter Type; 8.9.2 Hardware and Software; 8.9.3 Liquid and Gas Filtration 8.10 Conclusion9 Sanitation and Sterilisation; 9.4 Steam Sterilisation; 9.4.1 Autoclaving; 9.4.2 Sterilisation in Place; 9.4.3 Single Filter System; 9.4.4 Steam Sterilisation of a Larger Process System; 9.5.2 Duplex System; 9.6 Conclusion; 10 Filter Testing; 10.1 Introduction; 10.2 Integrity Testing; 10.3 Principles of Integrity Testing; 10.3.1 The Bubble Point Test; 10.3.2 Diffusion Test; 10.3.3 The Volumetric Test; 10.3.4 The Pressure-hold Test 10.3.5 Which Method to Use?
Sommario/riassunto	Contamination control has received great interest and found increasing use within several industrial branches including microelectronics, pharmaceuticals, food and beverages using various concepts of contamination control in their production, purification or packaging process. The book supplies a holistic view of contamination control, presenting the different types of contaminants in a summarized form. The focus is on how to protect products and processes from external contamination and also on different ways to take care of and control contaminants generated in the process. The aim is to eli