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Nota di contenuto	Cover; Contents; Preface; In Memory; About the Author; Foreword; Chapter 1. An Overview of Water and Wastewater Treatment; Introduction; What We Mean by Water Purification; The Clean Water Act; Introducing the Physical Treatment Methods; Introducing Chemical Treatment; Energy Intensive Treatment Technologies; Water Treatment in General; Some General Comments; List of Abbreviations Used in this Chapter; Recommended Resources for the Reader; Questions for Thinking and Discussing; Chapter 2. What Filtration Is All About; Introduction; Terminology and Governing Equations; Filtration Dynamics Wastewater Treatment ApplicationsKey Words; Nomenclature; Recommended Resources for the Reader; Questions for Thinking and Discussing; Chapter 3. Chemical Additives that Enhance Filtration; Introduction; Aluminum Based Chemical Additive Compounds; Iron-Based Compounds; Lime; Soda Ash; Liquid Caustic Soda; Filter Aids; Recommended Resources for the Reader; Questions for Thinking and Discussing; Chapter 4. Selecting the Right Filter Media; Introduction; Types of Filter Media to Choose From; Rigid Filter Media; General Properties of Loose and Granular Media; Filter Media Selection Criteria Recommended Resources for the ReaderQuestions for Thinking and Discussing; Chapter 5. What Pressure and Cake Filtration Are All About;

Introduction; Constant Pressure Differential Filtration; Constant-Rate Filtration; Variable-Rate and -Pressure Filtration; Constant-Pressure and -Rate Filtration; Filter-Medium Filtration Formulas; Cake Filtration Equipment,; Nomenclature,; Recommended Resources for the Reader,; Questions for Thinking and Discussing; Chapter 6. Cartridge and Other Filters Worth Mentioning; Introduction; Cartridge Filters; The Tilting Pan Filter; The Table Filter
Questions for Thinking and DiscussingChapter 7. What Sand Filtration is All About; Introduction; Water Treatment Plant Operations; Granular Media Filtration; Let's Take a Closer Look at Sand Filters; Slow Sand Filtration; Rapid Sand Filtration; Chemical Mixing and Solids Contact Processes; Recommended Resources for the Reader; Questions for Thinking and Discussing; Chapter 8. Sedimentation, Clarification, Flotation, and Coalescence; Introduction; Let's Look at How a Single Particle Behaves in a Suspension; Gravity Sedimentation; The Sedimentation Process in Greater Detail
A Closer Look at Mechanical Clarification Process and the Chemistry of ClarificationRectangular Sedimentation Tanks; Air Flotation Systems; Separation Using Coalescers; Nomenclature; Recommended Resources for the Reader; Questions for Thinking and Discussing; Chapter 9. Membrane Separation Technologies; Introduction; An Overview of Membrane Processes; What Electrodialysis Is; What Ultrafiltration Is; What Microfiltration and Nanofiltration Are; What Reverse Osmosis Is; Recommended Resources for the Reader; Questions for Thinking and Discussing; Chapter 10. Ion Exchange and Carbon Adsorption Introduction

Sommario/riassunto

This Handbook is an authoritative reference for process and plant engineers, water treatment plant operators and environmental consultants. Practical information is provided for application to the treatment of drinking water and to industrial and municipal wastewater. The author presents material for those concerned with meeting government regulations, reducing or avoiding fines for violations, and making cost-effective decisions while producing a high quality of water via physical, chemical, and thermal techniques.Included in the texts are sidebar discussions, questions for thinking