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Nota di contenuto	WATER SOFTENING WITH POTASSIUM CHLORIDE; CONTENTS; PREFACE; ACKNOWLEDGMENTS; 1 WHAT IS POTASSIUM CHLORIDE?; Saskatchewan Potash History; Potash Mining; Solution Mining; Processing Potash Ore; Storage, Transportation, and Distribution of Potash; Potash Products; 2 WHAT IS HARD WATER?; Definition of Hard Water; How Hard Water is Created; Problems Associated With Hard Water; How Hard Water is Measured; Uniform Degrees of Hardness; Types of Hardness; 3 LOWERING WATER HARDNESS; Ion Exchange; Deionization or Demineralization; Reverse Osmosis; Distillation; Precipitation; 4 THE ION EXCHANGE PROCESS Synthesis and Structure of Ion Exchange ResinsTypes of Ion Exchange Resins; Household Water Softening; Typical Household Water Softeners; Cocurrent and Countercurrent Regeneration; Mathematical Treatment of Ion Exchange Equilibria; Selectivity of Ion Exchange Reactions; 5 BASIC CHEMISTRY OF ION EXCHANGE; The Building Blocks of Matter;

Atomic and Molecular Weights; Cations and Anions; Chemical Reactions; 6 OPERATION AND TYPES OF WATER SOFTENERS; Historical Methods of Regeneration; Operation of a Typical Water Softener; Common Sequences of Cycles; Types of Water Softeners Sizing a Water Softener7 POTASSIUM CHLORIDE REGENERANT FOR WATER SOFTENING; Alternate Regenerants; Potassium Chloride Regenerant; Initial Comparison of KCl and NaCl; Challenges When Using KCl as a Regenerant; Frequently Asked Questions; 8 COMPARISON OF KCl AND NaCl AS REGENERANT; Definition of Terms; Theoretical Capacities of KCl and NaCl Regenerants; Calculation of Regeneration Efficiency; Sizing a Softener for Salt Efficiency; Implications for Salt Consumption; Total Salt Released to the Environment; Comparison of KCl and NaCl: Solubility; Comparison of KCl and NaCl: Speed of Dissolution
Comparison of KCl and NaCl: Capacity
Comparison of KCl and NaCl: Used and Unused Regenerant; Comparison of KCl and NaCl: Release of Chlorides to the Environment; Comparison of KCl and NaCl: Taste; Comparison of KCl and NaCl: Generation of Fines; Comparison of KCl and NaCl: Sodium Content of Softened Water; Comparison of KCl and NaCl: Potassium Content of Softened Water; Comparison of KCl and NaCl: Total Dissolved Solids; 9 ENVIRONMENTAL CONSIDERATIONS; Potassium versus Sodium: Impact on Soil; Potassium versus Sodium: Impact on Septic Systems
Potassium versus Sodium: Impact on Sewage Treatment Systems
Potassium versus Sodium: Sewage Sludge; Potassium versus Sodium: Algae Growth; Potassium versus Sodium: Impact on Plants and Animals; Potassium versus Sodium: Use of Recycled Graywater; Recycling Regenerant Wastewater; Use of Regenerant Wastewater Studies at University of California, Davis; In Conclusion; 10 POTASSIUM AND HUMAN HEALTH; Overview; Introduction; Cellular Physiology of Potassium; Potassium Balance; Defects in Potassium Elimination; Medical Conditions Related to Potassium Excess
Medical Conditions Related to Potassium Deficit

Sommario/riassunto

Potassium chloride is a logical alternative to sodium chloride in water softening. Water Softening with Potassium Chloride provides a thorough overview of the process, the equipment, and the techniques used. Then it compiles diverse trade and technical data on water softening with potassium chloride so readers can make informed decisions. It documents the health and environmental consequences and benefits of using potassium chloride and includes a chapter with summaries of recent research projects and FAQs. This is a key reference for professional water treatment specialists, environmental sci
