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Sommario/riassunto	This book systematically analyses state-of-the-art technology and research related to desiccant dehumidification. It provides key insights into the current research direction, and presents global research and development interests. It begins by offering a comprehensive review of conventional desiccants and their underlying engineering challenges. Fundamental material characteristic properties and factors critical to the desiccant synthesis are highlighted. The applicability of next-generation advanced materials to address the challenges is documented, and the advantages of desiccant coated heat exchangers are evaluated. Lastly, the potential applications of desiccant dehumidifiers in various energy-connected applications are discussed, and case studies on industrial/building cooling systems are provided. Specifically targeted at HVAC engineers, thermal scientists, energy-engineering researchers, and graduate-level students in the field, the technical content balances fundamental concepts and applications.