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Nota di contenuto	Chapter 1: Evolution and current status of mineral bioprocessing technologies -- Chapter 2: Design, Construction and Modelling of Bioheaps -- Chapter 3: Engineering Designs and Challenges of Stirred Tank Systems -- Chapter 4: Bioprocessing of Refractory Gold Ores: The BIOX, MesoTHERM and ASTER Processes -- Chapter 5: Biomining Microorganisms: Diversity and Modus Operandi -- Chapter 6: Biomolecular and Cultivation Tools -- Chapter 7: Microbial ecology of bioheaps, stirred tanks and mine wastes -- Chapter 8: Biomining in China: history and current status -- Chapter 9: Copper Bioleaching Operations in Chile: Towards New Challenges and Developments -- Chapter 10: Heap bioleaching of an enargite-dominant ore body: Minera Yanacocha, Péru -- Chapter 11: Bio-oxidation of gold ores in Russia and Kazakhstan -- Chapter 12: Biomining in Finland: Commercial Application of Heap and Tank Bioleaching Technologies for

Nickel Recovery -- Chapter 13: Mineral Bioleaching in Brackish and Saline Environments -- Chapter 14: Metal Recovery from E-wastes -- Chapter 15:Reductive Mineral Bioprocessing -- Chapter 16: Biological Removal and Recovery of Metals from Waste Streams and Process Waters -- Chapter 17: The Future of Biomining: Towards Sustainability in a Metal-demanding World.

Sommario/riassunto

This book describes emerging and established industrial processes of biomining technologies used for the recovery of metals of economic interest from, e.g. mineral ores, mining and electronic wastes using microbiological technologies. Multiple chapters focus on engineering design and operation of biomining systems. Several industrial case studies from China, Chile, Peru, Russia/Kazakhstan and Finland are included, which emphasises the practical approach of the book. The reader not only learns more about the biology, diversity and ecology of microorganisms involved in biomining processes, but also about microbial biomolecular and cultivation tools used in the biomining industry. Special emphasis is put on emerging biotechnologies enabling the use of biomining for recycling metals from e-wastes, waste streams and process waters. Finally, the future impacts and direction of biomining towards sustainability in a metal-demanding world are also highlighted. The book is aimed at an interdisciplinary audience involving operators and researchers working across disciplines including geology, chemical engineering, microbiology and molecular biology. This is reflected by the content of this book, as well as by its authors, who are all leading practitioners and authorities in their fields.