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Autore	Shah Maulin P
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Descrizione fisica	1 online resource (358 pages)
Disciplina	363.728 628.4
Soggetti	Refuse and refuse disposal Water Hydrology Nanotechnology Industries Pollution Waste Management/Waste Technology
Lingua di pubblicazione	Inglese
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Nota di contenuto	Nano-biotechnology based solution to the age old problem of spentwash causing water pollution in the vicinity of distilleries -- Application of nanomaterials in heavy metals remediation from wastewater -- Application of metallic nanoparticles for industrial wastewater treatment.
Sommario/riassunto	This book discusses new and innovative trends and techniques in the application of nanotechnology to industrial wastewater treatment both at a laboratory scale and an industry scale, including treatment, remediation, sensing and pollution prevention. The book also explores unique physicochemical and surface properties of nanoparticles; it highlights advantages they provide for engineering applications. Each chapter covers a different nanotechnology-based approach and examines basic principles, practical applications, recent breakthroughs and associated limitations. Nanotechnology applications to wastewater research have significant impact in maintaining the long-term quality, availability and viability of water. Regardless of the origin—for example,

municipal or industrial wastewater—the remediation nanotechnology allows water to be recycled and desalinated in addition to simultaneously detecting biological and chemical contamination. The book describes a broad area of nanotechnology and water research where membrane processes (nanofiltration, ultrafiltration, reverse osmosis and nanoreactive membranes) are considered key components of advanced water purification and desalination technologies that remove, reduce or neutralize water contaminants. Various nanoparticles and nanomaterials that could be used in water remediation (zeolites, carbon nanotubes, self-assembled monolayers on mesoporous supports, biopolymers, single-enzyme nanoparticles, zero-valent iron nanoparticles, bimetallic iron nanoparticles and nanoscale semiconductor photocatalysts) are also discussed. This book is beneficial for students and academicians to understand the recent research advancements in the field.

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