

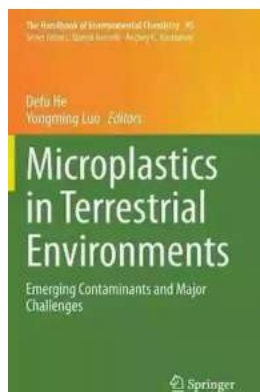
Emerging Contaminants And Major Challenges: The Handbook Of Environmental

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Emerging contaminants pose a significant threat to our environment and human health. These contaminants, often referred to as emerging pollutants, are substances that are newly identified or recently discovered in the environment. They include chemicals, pharmaceuticals, personal care products, pesticides, and industrial byproducts, among others. The Handbook of Environmental Science and Engineering provides a comprehensive guide to understanding and mitigating the challenges posed by these emerging contaminants.

The Definition and Scope of Emerging Contaminants

Emerging contaminants are substances that are not routinely monitored or regulated, but their potential adverse effects on human health and the environment are increasingly recognized. These contaminants can enter the environment through various pathways, including industrial activities, agricultural practices, and domestic use. Their presence and persistence in air, water, soil, and biota can lead to long-term ecological and health risks.



Microplastics in Terrestrial Environments: Emerging Contaminants and Major Challenges (The Handbook of Environmental Chemistry 95)

by Rémy Marion(1st ed. 2020 Edition, Kindle Edition)

★★★★★ 5 out of 5

Language : English

File size : 29663 KB

Text-to-Speech : Enabled

Screen Reader : Supported



Some examples of emerging contaminants are per- and polyfluoroalkyl substances (PFAS), which are widely used in consumer products such as non-stick cookware, waterproof textiles, and firefighting foams. Other examples include endocrine-disrupting chemicals (EDCs) that can interfere with hormonal systems in humans and wildlife, and pharmaceuticals and personal care products (PPCPs) that are frequently detected in water bodies due to improper disposal and wastewater treatment.

The Impacts and Challenges of Emerging Contaminants

Emerging contaminants present a unique set of challenges due to their complex behavior, persistence, and potential toxicity. These contaminants can bioaccumulate in organisms, biomagnify in food chains, and persist in the environment for long periods. As a result, they can have detrimental effects on ecosystems and human health.

The impacts of emerging contaminants can be wide-ranging. For instance, PFAS have been linked to adverse health effects such as cancer, liver damage, and developmental disorders. EDCs can disrupt reproductive and developmental processes in humans and wildlife, leading to fertility problems and abnormal growth. PPCPs can result in the development of antibiotic-resistant bacteria and have been found to affect aquatic organisms, such as fish and amphibians.

The challenges associated with emerging contaminants include the lack of comprehensive data on their occurrence, distribution, and fate in the

environment. This makes it difficult to assess their potential risks and develop effective management strategies. The complexity of their behavior and the potential for mixture effects further complicate their regulation and control.

The Handbook of Environmental Science and Engineering: A Comprehensive Guide

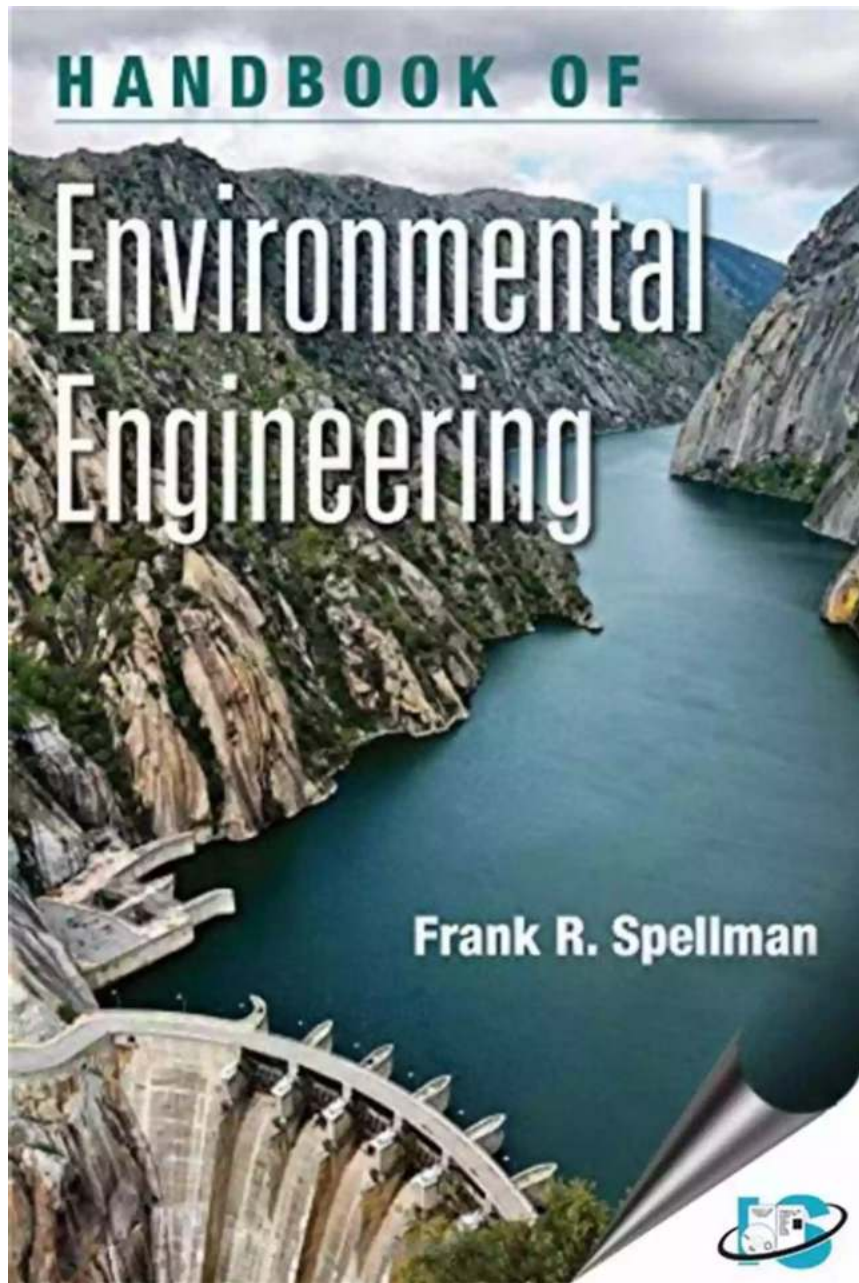
The Handbook of Environmental Science and Engineering serves as an invaluable resource for researchers, professionals, and policymakers seeking to understand and address the challenges posed by emerging contaminants.

The handbook covers a wide range of topics related to emerging contaminants, including their sources, transport and fate in different environmental compartments, analytical methods for detection and quantification, and remediation technologies. It also provides insights into the ecological and health risks associated with these contaminants and discusses potential strategies for their management and regulation.

Furthermore, the handbook addresses the emerging contaminants' interactions with other stressors, such as climate change and urbanization, and their implications for ecosystem functioning and resilience. It emphasizes the need for interdisciplinary approaches and collaboration to tackle the complex challenges posed by emerging contaminants effectively.

Emerging contaminants pose significant challenges to environmental and public health. The Handbook of Environmental Science and Engineering offers a comprehensive guide to understanding and addressing these challenges. By providing a wealth of information on the sources, fate, impacts, and management strategies of emerging contaminants, the handbook serves as an essential tool for researchers, professionals, and policymakers working towards a cleaner and safer environment.

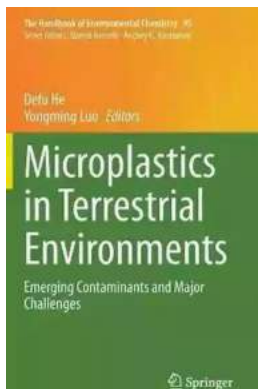
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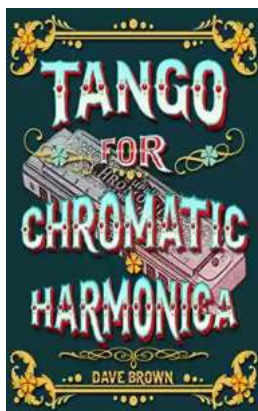
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This book focuses on microplastics as emerging persistent contaminants in terrestrial environments. Scientists from around the globe review recent advances in multi-disciplinary research on micro(nano)plastics, including analytical methods; the sources, fate and distribution of microplastics; ecological risks; toxicity and health risks; and control and countermeasures for microplastics in terrestrial environments. Offering a comprehensive overview of microplastics in terrestrial environments, the book is a valuable resource for environmental researchers, ecologists and toxicologists, as well as for policymakers and non-experts.



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