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Emerging Contaminants of Concern: Source, Transport, Fate and Treatment

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スラムパリィ ラオ^{1*}

Rao Surampalli^{1*}

¹アメリカ環境保護庁

¹U.S EPA

Emerging organic contaminants (EOCs) have been widely distributed in the environment and attracted increasing attention over the past decades. In this paper, the contaminants including endocrine-disrupting compounds, surfactants and their degradation products, plasticizers, pesticides, and retardants are comprehensively reviewed. Their main categories, properties, followed by their occurrences and behavior (fate and transport) in natural and engineered systems are discussed. These compounds can enter the environment after their application, after use they are usually discharged into municipal sewer systems and afterwards treated in wastewater treatment plants, where they are completely or partially removed by a combination of sorption and biodegradation. These substances among different phases (air, water and sediment/soil) in the environment are presented. Furthermore, the fate of the nanoparticles in different environmental compartments as well as their effects on human health and other fauna are presented in this paper. The study confirmed the presence of complex mixtures of unregulated contaminants, having various origins, and raised concern about their potential interactive effects.

Keywords: Emerging organic contaminants, Source, Transport, Fate, Treatment