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Synergistic Advanced Chemical Processes for water and wastewater treatment applications

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Abstract

Synergistic Advanced Chemical Processes based on Advanced Oxidation Processes (AOPs) and Advanced Reduction Processes (ARPs) often assisted by photolysis or cavitation phenomenon provide effective method for water and wastewater treatment. These processes form reactive radical species suitable for effective degradation of emerging organic pollutants [1-3]. This presentation will discuss fundamentals of such technologies, phenomena responsible for synergistic effects and recent advancements in the targeted water and wastewater treatment applications. Main achievements include the successful degradation of various contaminants found in both water and industrial effluents, while some processes can result in co-generation of useful chemicals [4-6]. Challenges and new types of processes to solve the existing environmental issues will be highlighted.

Keywords: cavitation, persulfates, ozonation, percarbonate, dithionate, oxidative radicals, reductive radicals.

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