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Study and application status of microwave in organic wastewater treatment - A review

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Abstract:

Microwave (MW) chemistry has been studied widely in the field of organic wastewater treatment due to its rapid heating at the molecular level and its "hot spots" effect on the surface of an MW absorbent. It has been successfully combined with many kinds of organic wastewater treatment methods. An understanding of the general study status of MW-enhanced organic wastewater treatment methods could aid further improvement of organic wastewater treatment technologies associated with MW irradiation. In this review, the recent application status of MW irradiation, the MW heating mechanism, and the relevant theory in organic wastewater treatment are introduced, and then combinations of MW irradiation with different organic wastewater treatment methods are addressed in detail. After that, the energy efficiency of MW-enhanced organic wastewater treatment methods are calculated, discussed, and compared with that of some other organic wastewater treatment methods. The MW non-thermal effect is also discussed in the light of the recent study status. In order to understand the MW non-thermal effect well and promote the application of

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