

RESEARCH PAPERS

用UV/H₂O₂, UV/O₃, UV/H₂O₂/O₃催化处理城市固体垃圾填埋渗出物

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摘要 The performance of UV/H₂O₂, UV/O₃, and UV/H₂O₂/O₃ oxidation systems for the treatment of municipal solid-waste landfill leachate was investigated. Main objective of the experiment was to remove total organic carbon (TOC), non-biodegradable organic compounds (NBDOC) and color. In UV/H₂O₂ oxidation experiment, with the increase of H₂O₂ dosage, removal efficiencies of TOC and color along with the ratio of biochemical oxygen demand (BOD) to chemical oxygen demand (COD) of the effluent were increased and a better performance was obtained than the system H₂O₂ alone. In UV/H₂O₂ oxidation, under the optimum condition H₂O₂ (0.2 time), removal efficiencies of TOC and color were 78.9% and 95.5%, respectively, and BOD/COD ratio was significantly increased from 0.112 to 0.366. In UV/O₃ oxidation, with the increase of O₃ dosage, removal efficiencies of TOC and color along with BOD/COD ratio of the effluent were increased and a better performance was obtained than the system O₃ alone. Under the optimum condition UV/O₃ (50 mg.min⁻¹), removal efficiencies of TOC and color were 61.0% and 87.2%, respectively, and BOD/COD ratio was significantly increased from 0.112 to 0.323. In UV/H₂O₂/O₃ system, color removal and BOD/COD ratio were improved further and TOC removal efficiency was found to be 30.4% higher than the system UV/O₃ without H₂O₂.

关键词 [photochemical degradation](#) [UV/ozone](#) [UV/hydrogen peroxide](#) [advanced oxidation process](#) [landfill leachate](#) [UV-reflecting reactor](#)

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UV-Catalytic Treatment of Municipal Solid-Waste Landfill Leachate with Hydrogen Peroxide and Ozone Oxidation

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Abstract The performance of UV/H₂O₂, UV/O₃, and UV/H₂O₂/O₃ oxidation systems for the treatment of municipal solid-waste landfill leachate was investigated. Main objective of the experiment was to remove total organic carbon (TOC), non-biodegradable organic compounds (NBDOC) and color. In UV/H₂O₂ oxidation experiment, with the increase of H₂O₂ dosage, removal efficiencies of TOC and color along with the ratio of biochemical oxygen demand (BOD) to chemical oxygen demand (COD) of the effluent were increased and a better performance was obtained than the system H₂O₂ alone. In UV/H₂O₂ oxidation, under the optimum condition H₂O₂ (0.2 time), removal efficiencies of TOC and color were 78.9% and 95.5%, respectively, and BOD/COD ratio was significantly increased from 0.112 to 0.366. In UV/O₃ oxidation, with the increase of O₃ dosage, removal efficiencies of TOC and color along with BOD/COD ratio of the effluent were increased and a better performance was obtained than the system O₃ alone. Under the optimum condition UV/O₃ (50 mg.min⁻¹), removal efficiencies of TOC and color were 61.0% and 87.2%, respectively, and BOD/COD ratio was significantly increased from 0.112 to 0.323. In UV/H₂O₂/O₃ system, color removal and BOD/COD ratio were improved further and TOC

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Key words [photochemical degradation](#); [UV/ozone](#); [UV/hydrogen peroxide](#); [advanced oxidation process](#); [landfill leachate](#); [UV-reflecting reactor](#)

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