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Influence of the boron doping level on the electrochemical oxidation of raw landfill leachates: advanced pre-treatment prior to the biological nitrogen removal

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ABSTRACT

The electrochemical oxidative treatment of landfill leachates (LLs) containing high amounts of ammonia nitrogen and organic matter was used as a promising method, prior to biological processes, to achieve the final effluent quality that would be acceptable by current regulations. The deposited boron-doped diamond electrodes (BDDs) with different boron doping concentrations (10000, 5000 and 500 ppm of B) were applied as anodes. The results showed that the boron doping level influences the electrochemical activity and selectivity of electrode surface due to a decrease in the sp^3/sp^2 ratio of the BDD material. Special attention