

Electrolytic generation of peroxydiphosphoric acid using an undivided electrolytic cell

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Peroxydiphosphoric acid is one of the strong oxidizing agents for organic reactions and for pollutant removal in environmental sciences. This can be generated on site and on demand by electrolysis in an undivided electrolytic cell. Here, we have demonstrated the production of peroxydiphosphoric acid ($H_4O_8P_2$) using boron doped diamond (BDD) anode and Titanium and Lead cathodes. The influence of various process parameters such as concentration of the phosphoric acid, temperature, and the ration between anode and cathode were investigated. The concentration of the produced oxidant was found by titrimetry. It was observed that the nature of the cathode influences the percentage of formation of peroxydisulfuric acid also to some extent.