
Effects of Electrode Parameters on Water Sterilization Using Pulsed Arc Electrohydraulic Discharge

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Pulsed arc electrohydraulic discharge (PAED) is a potential effective method applying on water sterilization. The effects of electrode parameters need to be researched. They may influence the results of water treatment by affecting the development of plasma channel. In this article, the effects of electrode parameters on water sterilization were studied. Experiments with different electrode materials, shapes and gap distance were carried out. Several conclusions were got in the paper. Tungsten electrode performed the slightest erosion degree and had the highest sterilization rate on E.coli than other electrode materials. Rod-electrode produced the largest shockwave amplitude and maintained the most stable discharge than cone-electrode and hemisphere-electrode with lower discharge dispersion. With the increase of gap distance, the sterilization rate increased first and then decreased.