

Detection and elimination of Chromium(VI) Application to the removal of industrial liquid effluents.

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We investigated the reduction of chromium VI by pin-to-pin micro-pulsed discharge in water (Fig. 1a) [1]. We have studied the influence of several different parameters of plasma discharge operation: Energy injection (include apply voltage, frequency, gap between two electrodes), and pulse duration. We reported that the concentration of Cr(VI) decreased with the increased of the energy and pulse duration. (Fig.1b) shown the effect of the apply voltage to the reduction efficiency and the decreased linear with time, a complete reduction of Cr(VI) occurs after 75 min for 12kV and 120 min for 9kV.

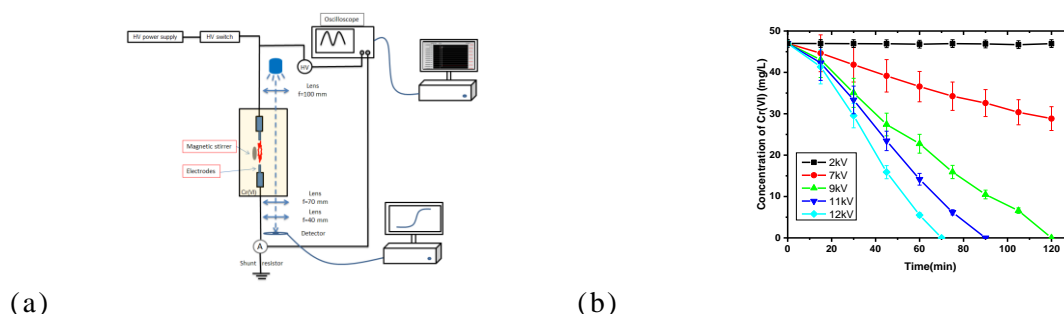


Fig. 1(a) *Experimental set-up*, (b) *Concentration of Cr(VI) versus time*

The influence of the pulse duration on the reduction efficiency have been present in fig. 2

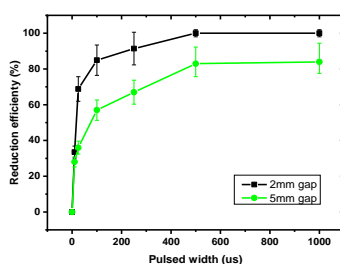


Fig. 2 *Reduction efficiency versus pulse duration*

The obtained results strongly depend on the pulse length and also depend on the gap between two electrodes. The huge different from 2mm gap with 5mm gap can be explain because of the characteristic of plasma discharge. We report that the reduction efficiency increased with the increased of the pulse length.

Acknowledgement

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Références

[1] Nguyen T. S., et al. 2020 Investigation of Hydrogen Peroxide Formation After Underwater Plasma Discharge. *Plasma Chemistry and Plasma Processing* 40(4):955-969