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## **NON-THERMAL PLASMA MINI-REACTORS FOR WATER TREATMENT**

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### **Abstract**

The non-thermal plasma technologies (NTP) have been proved to be an alternative for air and water pollutants treatment. The goal of this paper is to emphasize the effect of the different non-thermal plasma mini-reactor configurations on the soluble organic compounds' removal from water. Therefore, a soluble organic dye (Reactive Blue 19) solution has been treated in an NTP experimental reactor using different electrodes configurations. The influence of the different geometrical configuration of the reactors, such as electrodes shape and distance between them, on Reactive Blue 19 dye decolourization have been studied. The dye solution decolourization has been measured using colorimetric methods and upon the measurements results the energy efficiency EEf (g/kWh) of the dye removal have been calculated.

The experimental results have shown that the electrochemical processes occurring in plasma and, consequently, the dye removal rate are significantly depending on the electrodes' shape. The best results have been obtained for using a reactor having one sharp active electrode and one horizontal plan section for the outlet electrode, while the distance between them was 4 mm.

*Key words:* dye, electrodes shape, non-thermal plasma.

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