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## **EFFECT OF ELECTRICAL CURRENT ON H<sub>2</sub>/ H<sub>2</sub>O<sub>2</sub> GENERATION IN NON-THERMAL PLASMA GLIDING ARC REACTORS**

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### **Abstract**

The formation rates and energy yields of H<sub>2</sub> and H<sub>2</sub>O<sub>2</sub> generated in gas phase, liquid phase respectively, from pure water exposed to a non-thermal alternative current (A.C.) plasma-gliding arc reactor equipped with a spray nozzle have been studied. In the present work the focus is on the effects of electrical current injected into plasma, for different liquid flow rates, in A.C. gliding arc (Glidarc) electrical discharge reactors on reactive species formed in water and gas phase. Previous works (Burlica et al., 2008, 2010) showed that spraying the liquid through a special two-way nozzle directly into the plasma zone is an effective method to enhance the efficiency of chemical species formation in gliding arc reactors. The formation rates of hydrogen and hydrogen peroxide were determined, emphasizing an optimum point for energy efficiency with current and water flow rate.

*Key words:* hydrogen, hydrogen peroxide, glidarc, non-thermal, plasma

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