

# Discharge Ignition in the Diaphragm Configuration Supplied by DC Non-pulsing Voltage

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This work deals with the ignition of the discharge in the diaphragm configuration generated in water solutions containing supporting NaCl electrolyte. The reactor has volume of 110 ml and it is made of polycarbonate. HV electrodes made of stainless steel are placed in this reactor. Ceramic (Shapal-M<sup>TM</sup>) diaphragm is placed in the barrier separating the cathode and the anode space. An electric power source supplies the reactor by constant DC voltage up to 4 kV and electric current up to 300 mA. The discharge ignition is compared in the reactor with different sizes of diaphragms. Measurements are carried out in electrolyte solutions with the same conductivity. Images of plasma streamers and bubble formation are taken by an ICCD camera iStar 734. Electrical characteristics are measured by an oscilloscope LeCroy LT 374 L in order to determine breakdown moments at different experimental conditions.

Keywords: diaphragm discharge, electrolyte, ICCD camera