

Study of the influence of a dielectric disk rotation speed on active power consumed by the dielectric barrier discharge cell in air at atmospheric pressure

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At atmospheric pressure in the air effect of angular velocity of a dielectric rotation on the active power consumed by the dielectric barrier discharge (DBD) cell is studied experimentally. DBD, carried out in the cell with a rotating dielectric, has a number of noteworthy features. For example, in contrast to DBD systems that do not contain moving parts, in the case under study, DBD occurs at DC high voltage on the discharge cell electrodes. DBD also develops if the voltage that changes over time is applied to the electrodes, provided that the polarity of each electrode remains unchanged. Significant dependence of the active power consumed by the DBD cell on the dielectric disk rotation speed is investigated. The studies were carried out at a voltage of negative polarity on the high-voltage electrode, since it was previously established that at negative polarity ozone is synthesized more intensely.

Keywords: dielectric barrier discharge, rotating dielectric barrier, low-temperature plasma.

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