

ATMOSPHERIC PRESSURE RF PLASMA CHARACTERISTICS*

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Atmospheric pressure dielectric barrier capacitively coupled rf (13.56 MHz) plasma was produced in air assisted by 5-7 lpm helium flow. A grounded 2 mm diameter copper wire placed on the axis of a glass cylinder, 3.2 cm in diameter and 22.5 cm in length. A 11.4 cm length cylindrical rf antenna was placed outside the tube. Optical emission spectroscopy (OES) and a double probe were used to determine plasma characteristics. A glow region like crescent shape was observed around grounded electrode by an ICCD (intensified charge-coupled device) camera. N₂ molecular vibrational lines and helium, oxygen, hydrogen and argon atomic lines were observed. The electron temperature was calculated as 701-1065K via the Boltzmann plot method from the helium lines.

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