

Abstract Submitted
for the GEC17 Meeting of
The American Physical Society

Effects of Gas Temperature in Plasma Layer on RONS generation in Array-type Dielectric Barrier Discharge at Atmospheric Pressure SUNG-YOUNG YOON, CHANGHO YI, SNGHEUM EOM, SEUNGIL PARK, SEONG BONG KIM, SEUNGMIN RYU, SUNG JAE YOO, Plasma Technology Research Center of National Fusion Research Institute — In this work, we demonstrate the changing of the major plasma generating species under the fixed discharge gas composition. The atmospheric pressure plasmas in the atmosphere are able to produce various reactive oxygen and nitrogen species (RONS). The O₃ and NO_x are representative RONS. Since the influences of these species show different influences on the organisms, it is necessary to change the plasma produced species depending on the treatment targets. We generate the plasma under ambient airflow using the array-type dielectric barrier discharge (DBD) electrode. The plasma generated species with flow rates are monitored using the FTIR. It was found that main generation transits from O₃ to NO_x as the flow rate increased. As a result of comparative analysis by measuring the gas temperature in discharge and the electrode surface temperature using OES and IR, it was found that the gas temperature of the discharge layer is an important factor to regulate the discharger species. Acknowledgments – This study was supported by R&D Program of ‘Plasma Advanced Technology for Agriculture and Food (Plasma Farming)’ through the National Fusion Research Institute of Korea (NFRI) funded by the Government funds.

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Date submitted: 04 Jun 2017

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