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Formation of Reactive oxygen species in atmospheric pressure plasma jet.[1] SURABHI JAISWAL, EVAN AGUIRRE, Auburn University, G VEDA PRAKASH, Indian Institute of Technology Delhi — We report on the characterization of an argon atmospheric pressure plasma jet with strong emission of atomic oxygen along with O^1S emission. The plasma jet was formed with pure argon gas without the need for secondary gases such as O2 or N2. The O^1S emission was continually present for a variety of parameters including: argon flow rate, electrode gap, and applied voltage. However, a threshold is found in all these parameter for the maximum atomic oxygen components in the plasma. The plasma plume length was in excess of 2.5 cm and was found to produce a variety of reactive species (OH, O, N2, and N^{+2}) that are important for biomedical and technological applications. The chemical formulation for the formation of reactive oxygen species in pure argon plasma has been established and their effect on the biological and other industrial applications has been discussed.

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