

Abstract Submitted
for the GEC05 Meeting of
The American Physical Society

Measurement of Radical Density in an Atmospheric Plasma by Molecular Beam Mass Spectrometry YOLANDA ARANDA GONZALVO, ALAN REES, PETER HATTON, DAVE L. SEYMOUR, IAN D. NEALE, Hiden Analytical Ltd., 420 Europa Boulevard, Warrington, WA5 7UN, England — Radical species produced in an atmospheric discharge have been measured by appearance potential mass spectrometry (APMS) using a Hiden EQP differentially pumped mass/energy analyser. The non-thermal discharge was generated by a radio frequency driven atmospheric plasma source.¹ Species were sampled from atmospheric pressure using a triple stage differentially pumped molecular beam inlet system. The discharge was generated mainly in Helium and, for the present investigation, different percentages of Oxygen, Nitrogen, Nitrous oxide, Carbon dioxide and Carbon monoxide gases were added to the plasma discharge. Radical densities produced in the atmospheric discharge were studied as a function of the power and the distance between the plasma source and the entrance to the analyser. Other species observed from the Oxygen/ Helium and Nitrogen/Helium mixtures were NO radicals formed by recombination.

¹E. Stoffels et al., Plasma Sources. Sci. Technol.11(2002) 383-388

Dave Seymour
Hiden Analytical Ltd., 420 Europa Boulevard
Warrington, WA5 7UN, England

Date submitted: 16 Jun 2005

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