

Abstract Submitted  
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**Effect of added molecular gases ( $H_2$ ,  $O_2$ ,  $N_2$ ) in an analytical glow discharge on the ion signal intensities obtained using a high resolution mass spectrometer** VIKTORIA WEINSTEIN, EDWARD B.M. STEERS, TAMARA GUSAROVA, London Metropolitan University, KAROL PUTYERA, EAGLabs inc., LONDON METROPOLITAN UNIVERSITY TEAM, EAGLABS SYRACUSE COLLABORATION — Glow discharge plasma sources in combination with either mass spectrometry or optical emission spectroscopy are routinely used for spectrochemical analysis of solid samples. Analytical results can be significantly affected by traces of molecular gases as  $H_2$ ,  $O_2$ ,  $N_2$  which may be present in the plasma gas (argon), often arising from sample constituents. With the main purpose of understanding better the processes occurring in the plasma, small fractions (0-2%) of  $H_2$ ,  $O_2$  and  $N_2$  were introduced into the discharge gas and the changes in ion signal intensities for sputtered analyte, plasma gas and trace gases were examined for various samples. The sputter rates are also affected by alternative gases; they may be reduced due to reduced Ar ion and atom population or due to poisoning effects of the added gas on the surface. Therefore the changes in the sputter rates give additional information which helps to interpret the data. Time resolved analysis with a pulsed dc mode will be used to find out in which sequence ions are built in the discharge process.

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