The effect of ion energy upon plasma polymerization deposition rate for acrylic acid

David Barton, Robert D. Short, Stuart Fraser and James W. Bradley

Chem. Commun., 2003, 348–349 (DOI: 10.1039/b210781c)

The method by which ion energies were calculated from the plasma potential, V_p , and substrate bias, V_b , has been the source of some confusion. This is because the authors neglected to include that the spectrum shown in Fig. 1 had already been corrected for by the applied bias to the RF grid.

The plasma potential, V_p , is taken from the ion energy spectra, before these are corrected for by the applied bias. These spectra were not shown in the original article, and ion energies were estimated as being +67.5 V and +75.2 V without and with the bias potentials, respectively.

The bias potentials were measured directly from the grid, through an RF blocking filter, and were measured to be +3.0 V and +54.2 V, without and with the applied bias respectively. These voltages give the measured ion energies of +64.5 eV and +21.0 eV without and with bias respectively.

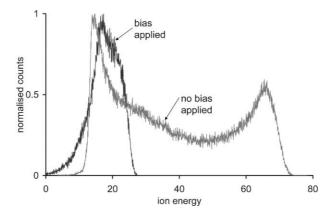


Fig. 1 Corrected ion energy distribution functions, $V_p - V_b$, at the substrate with and without the applied RF bias signal.

The measured deposition rates under high and low energy conditions were 54 and 33 $\mu g \, m^{-2} \, s^{-1}$, respectively as stated. This is not quite a two-fold increase in deposition rate under the high energy conditions, as mistakenly stated.

The Royal Society of Chemistry apologises for this error and any consequent inconvenience to authors and readers.

Additions and corrections can be viewed online by accessing the original article to which they apply.