Abstract Submitted
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Pulsed plasma polymerization of Ethylene Glycol for development of ultra thin biocompatible interfaces G. PADRON-WELLS, I.C. ESTRADA-RAYGOZA, L.J. OVERZET, M.J. GOECKNER, The University of Texas at Dallas — An investigation of the gas phase and surface phase behavior for Ethylene Glycol (EG) pulsed discharges is presented. Infrared spectroscopy was utilized to study the effect of plasma average power and its correlation to monomer selective fragmentation. This allows one to predict the proper average power range to maximize preservation of monomer functionality in film deposition processes. The main daughter species detected in the gas phase were identified as formaldehyde (CH_2O), carbon monoxide (CO), carbon dioxide (CO_2), and water (H_2O). This data allowed for the construction of a dissociative model of the EG molecule in the gas phase during discharge conditions. From this it was observed that neutral byproduct formation is the result of complex recycling processes occurring at the reactor walls. This is similar to previously reported results with a related compound: Di-ethylene glycol vinyl-ether.[1] In addition to gas-phase chemistry and surface reactions; we will also report on the analysis of the films grown under such conditions. This will be linked to the processes deduced from the gas-phase chemistry.

[1]G. Padron-Wells, et al., Colloids Surf. B: Biointerfaces (2008)

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