GAS PHASE STUDY OF A 2-CHLORO-P-XYLENE DISCHARGE*

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Parylene C is a widely used polymer when a high-quality protective layer is needed. It has excellent bulk properties that make it a popular choice for a wide array of areas that includes dielectric applications, biomedicine and micro-electromechanical systems (MEMS). Nonetheless, under traditional deposition its poor adhesion to a broad range of substrates remains a main concern. In comparison, plasma polymerization offers improved adhesion with retention of monomer functionality[1,2]. Unfortunately, most studies on plasma polymerization of parylene C focus only in the films characteristics.

In the work reported here we use a wide set of data to predict the film growth mechanisms during plasma polymerization of parylene C. Specifically, we examine plasma gas phase chemistry in a 2-Chloro-p-xylene discharge using Fourier-Transform Infrared Spectroscopy. In addition, we make use of a WISE© probe to measure electron temperature and density under the same conditions. Finally, we make use of an e-beam probe[3] to examine exhaust gas chemistry.

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