

Identification of the Primary Ion in some Chemi-  
Ionization Processes in a Fast Flow Reactor

K. D. Bayes, M. P. Gardner and C. Vinckier

The primary chemi-ion has been determined in the reaction of oxygen atoms with acetylene, ethylene and isobutane and in a nitrogen afterglow. The chemi-ions were formed in an annular region between two concentric stainless steel cylinders. The ions are sampled through a pinhole in the outer cylinder and subsequently analyzed by a quadrupole mass spectrometer. An applied electric field between the two cylinders reduced the importance of secondary ion-molecule reactions and allowed the isolation of the primary chemi-ion. At high field strengths  $\text{CHO}^+$  becomes the major ion in the hydrocarbon oxydation. Several other chemi-ionization systems have been examined by this method.

Dr. K. D. Bayes  
Department of Chemistry  
University of California  
Los Angeles, California  
USA